1987

A Comprehensive Impact Analysis: Kettle Point Residential Development East Providence, Rhode Island

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A COMPREHENSIVE IMPACT ANALYSIS:
KETTLE POINT RESIDENTIAL DEVELOPMENT
EAST PROVIDENCE, RHODE ISLAND

Submitted By:
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Submitted as a Master's Research Project in
Partial Fulfillment of the Requirements for the Degree of
Master of Community Planning

University of Rhode Island
1987

MASTER OF COMMUNITY PLANNING
RESEARCH PROJECT

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ACKNOWLEDGEMENTS

Throughout the research and writing of this project the authors have had the invaluable assistance, professional expertise and support of a number of people without whom, this project would not have been possible.

The authors first would like to express their appreciation to Kirk McClure for his review of and constructive input to the Pro Forma chapter of this report.

Thanks are extended to George Caldow, Director of Planning and Development in East Providence as well as to Deborah Perry, Assistant Planner in East Providence for making available to the authors, the information necessary to carry out our research, as well as their review and input into each phase of the project.

Within the Department of Community Planning and Area Development at the University, we have had the assistance of Dr. Howard H. Foster Jr. whom we would like to thank for his input regarding the structure and content of this report. We would especially like to thank Dr. Farhad Atash for his professional expertise as well as his continuous guidance and support as mentor and friend, from the project's conception to its completion.

Finally, thanks are in order to the students of the Department of Community Planning who listened attentively to the authors as problems arose and provided an atmosphere conducive to the problem solving necessary to carry out the projects objectives.

Thank You,

AG, DH

FORWARD

This report was prepared as a volunteer public service effort to assist the City of East Providence, through agreement with its Division of Planning, in assessing and analyzing the impacts of the proposed 600 unit Kettle Point Planned Unit Development project. The views and results expressed therein are those of Ms. Gersappe and Mr. Holcomb and may or may not express the views or opinions of the City of East Providence, Division of Planning or Planning Board.

The City is grateful to the authors and to the University of Rhode Island Graduate Curriculum in Community Planning and Area Development for providing this professional and timely assistance to the City in assessing the impacts of the proposed project. A Table of Contents follows.

George D. Caldow
Chief Planner

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INTRODUCTION

CHAPTER I

INTRODUCTION

The City of East Providence has the geographic advantage of an extensive coastal waterfront. The waterfront is dominated by two rivers, the Seekonk and the Providence, both of which lie in the north-east section of the Narragansett Bay drainage basin. Unfortunately, previous planning concentrated on industrial development, which resulted in uncontrolled development, pollution of the coastal waters and alterations of the shoreline. Nevertheless, the waterfront, even in its neglected state, represents one of the largest and potentially finest natural resources available to the City and its residents today.

Through the past few years, the City of East Providence has been faced with the challenge of how to utilize their waterfront resources both, as recreational amenities and a catalyst for future economic development. The market potential of vacant land for development and waterfront activity has captured the attention of developers. It would seem that the time has come for East Providence to capture its long sought and dreamed of waterfront, and to turn it not only into a financial asset, but also into an area of pride, beauty and public recreation. One such site at Kettle Point is being considered for residential development and will be the focus of this research project.

This project is primarily an impact analysis of the

proposed residential development at Kettle Point in the City of East Providence, Rhode Island. However, by using this case study as an example, the researchers hope to address the larger, long term issues which will accompany future development along the East Providence waterfront.

Background

Locational Analysis

The City of East Providence is centrally located within the Providence-Warwick-Pawtucket Metropolitan Statistical Area (MSA). It lies between Rhode Island's urban area and the more rural southern Massachusetts town of Seekonk. The City is bounded by waterbodies on two sides; the Providence and Seekonk rivers to the west and Narragansett Bay to the south, running 10 miles towards its eastern border. The City of Pawtucket lies at its northern border and Barrington to the south.

East Providence is located in close proximity to other major southern New England cities such as, Providence (1.5 mile), Boston (45 miles), Worcester (40 miles) and Hartford (75 miles). The City's transportation pattern also provides essential linkages between Rhode Island and Massachusetts through a number of routes such as, I-95, I-195 and Route 1A.

Demographics

The most recent statistics available concerning demographic estimates in East Providence places its total population in 1984, at approximately 51,686; with approximately 13,598 families; and 20,000 housing units.

Population trend analysis shows that demographic conditions in the City generally follow those seen nationally, with the number of children and family size shrinking and a large overall percentage of elderly residents. In 1980, 8,015 residents, about 16% of the population, were over 65 years of age.

Although East Providence is only the fifth largest municipality in the state, it experienced the largest proportional population increase between 1970 and 1980 in Rhode Island; approximately 5.8%. With a total land area of 16.5 square miles, the population density is approximately 3,833 residents per square mile of land (RIDED, Research Division, 1986).

As with many other Rhode Island communities, the racial mix (according to the 1980 census) includes a total white population of 47,715, a black population of 1,630, 171 Native Americans, 253 Asian and Pacific Islanders, and the remainder, a mix of other ethnic groups.

Table 1.1 shows Statewide Planning population estimates for 1984 in East Providence as compared to other Rhode Island communities. Rhode Island Statewide Planning has projected that by the year 2000, the community's population will be approximately 53,432 with an elderly population of approximately 8826, an increase of 1.4% (RISWP, 1987). This may prove to be a somewhat conservative estimate, since it does not account for the increase in population from development along the waterfront.

TABLE 1.1

POPULATION SUMMARY

CITY	AUG. 1984 (ESTIMATE)	APR. 1980 (CENSUS)	ESTIMATED CHANGE 1980 - 1984 NUMBER	PERCENT
PROVIDENCE	154198	156804	-2606	-1.7%
WARWICK	87198	87123	75	0.1%
CRANSTON	72720	71942	778	1.1%
PAWTUCKET	72803	71209	1594	2.2%
EAST. PROV.	51686	50980	706	1.4%
NEWPORT	29571	29259	312	1.1%
RHODE ISLAND	961881	947554	14327	1.5%

SOURCE: MONTHLY PROGRESS REPORT, #252, RI STATEWIDE PLANNING AUGUST, 1985.

TABLE 1.2

EAST PROVIDENCE HOUSING DATA
1970 - 1980

	1970	1980	CHANGE	PERCENT CHANGE 1970 - 1980
HOUSING UNIT COUNT	15954	19402	3448	21.6%
OWNER OCCUPIED HOMES	10597	11630	1033	9.7%
RENTER OCCUPIED HOMES	4547	6975	2428	53.4%

SOURCES: POPULATION CHANGE IN EAST PROVIDENCE: 1960-1980, MARCH, 1982, DEPT. OF PLANNING AND URBAN DEVPT.
RI BASIC ECONOMIC STATISTICS, RI DEPT. OF ECONOMIC DEVPT. 1985.

Housing

Between 1970 and 1980, the number of housing units in East Providence climbed from 15,494 units to 19,402, a total increase of about 25.2%. The percentage of owner occupied units in the City increased and remains at 62.5%, with a

median value of about $43,800 (1980), exclusive of condominiums (DED, Research Division, 1986). Table 1.2 summarizes housing data for the City between 1970 and 1980.

Employment and Median Income

Although East Providence provides jobs in all sectors of employment, the City is dominated by manufacturing (durable goods), the jewellery industry being the largest employer (4000 jobs - 15.36%). Other significant sectors of employment include wholesale trade (1135 - 4.36%), retail trade (3232 -12.41%), FIRE (1406 - 5.40%), Health Services (2,191 -8.42%) and Educational Services (1888 - 7.25%). The present local civilian labor force is estimated to be approximately 26,036, which is an increase of approximately 23.3% since 1970 (DED, Research Department, 1986).

With its significant demographic growth during the past one and a half decades, East Providence has also experienced the greatest increase in median income when compared to other Rhode Island communities. As shown in Table 1.3, between 1969 and 1979, the median family income in East Providence increased by about 95.8%.

The employment rate in East Providence in 1985 was 5.4%, significantly below the national average of 7.2% and slightly above the state average of 5.0%. It is clear that the City is experiencing economic prosperity, which is occurring in many parts of the northeast.

Today, East Providence is a growing city with a growing economy, thanks to its central location, and transportation

links which make it accessible, to the rest of the state and southern New England.

TABLE 1.3

MEDIAN FAMILY INCOME & NUMBER OF FAMILIES

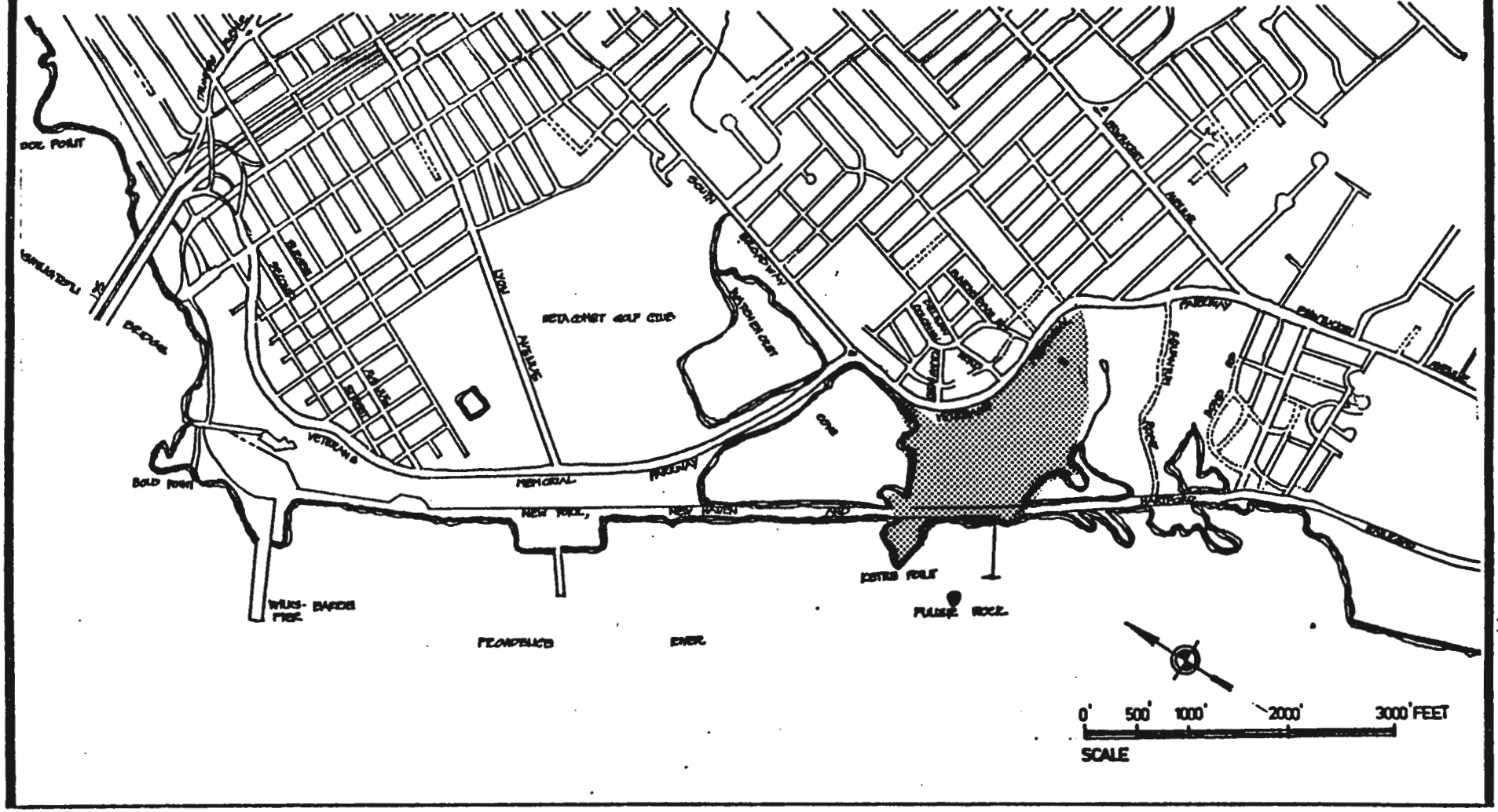
CITY	1979	1969	1959	% INCREASE 1969-1979	NO. OF FAMILIES 1980
PROVIDENCE	14948	8430	5069	77.3%	37202
WARWICK	21295	11006	6390	93.5%	23389
CRANSTON	20651	10778	6338	91.6%	19612
PAWTUCKET	17407	9265	5525	87.9%	19221
EAST PROV.	19926	10179	6082	95.8%	13635

SOURCE: U.S. CENSUS, 1980. RI DEPT. OF EMPLOYMENT SECURITY

Project Site

Location

The site for the proposed 600 unit development is a 41 acre parcel (peninsula) of land located on the west coast of the City of East Providence, directly across the Providence River from Field's Point. The site has the advantage of being bounded on 3 sides by waterbodies; Watchemocket Cove to the north, Narragansett Bay and the Providence River to the west and the Squantum Woods Basin as well the Squantum Woods on its south side (See Map 1.1). The site is bordered on its east side by a 120 ft. wide strip of land owned by the Department of Environmental Management, located along Veterans Memorial Parkway. Running east-west and separating the rest of the site from the "point" is the Providence-Worcester Railroad, soon to be a bicycle path. The site is



CPAD, URI	KETTLE POINT RESIDENTIAL DEVELOPMENT LOCATION MAP LAND UNDER OPTION TO TDC	map 1.1

approximately 12 minutes from the Providence central business district.

History

The site is presently zoned industrial (I2) and has been used as such since the early 1900's. The waterfront along this site like the rest of the waterfront property in the City, has therefore been inaccessible to the community residents. At present, the site has an abandoned oil tank field, and a petroleum storage and distribution station.

Following the abandonment of the property by its former owners (Amoco Oil Co. & ARCO Petroleum Products) in 1984-85, the site has come under a sales agreement, in 1986, with the Transcontinental Development Corporation (TDC). The Corporation has subsequently filed a Planned Unit Development (PUD) application to the City for the future development of the site for residential use.

Topography

The site's topography rises from sea level to about 80 feet above sea level on its western end. It is located between 2 tidal marshes; one on the south end at Watchemocket Cove and the other in the Squantum Woods Basin. The site is covered by closely clustered rock outcrops (USGS Map, Providence Quadrant).

Vegetation

The vegetation covering the site is typical of that on vacant lots and open fields in the area; grass, sumac, wild shrub cherry, blueberries and several small apple trees. The

only stand of trees is an oak grove along a portion of the Watchemocket Cove shoreline, near the north-east of the site (Public Archeology Laboratories, 1987).

Environmental Impact

The site has been severely impacted by the construction of the oil storage facility. This impact took the form of excavation into the bedrock for the placement of tanks. In many cases, blasting has been used during construction of the tanks, to safeguard against spillage of the petroleum products.

However, under the purchase agreement, the site is to be delivered free and clear of the structures used in petroleum storage, and the "clean-up" will therefore be conducted by the former owners (Amoco Oil Co. & ARCO Petroleum Products). Final statements as to the soil conditions on site were not available at this time.

Archeological Data

An archeological investigation which was conducted recently, brought to light a number of projectile points, as well as a hearth. However, the extensive excavation which was done for the construction of the oil tank field, led the investigating archeological team to reach the following conclusions, "There seems to be little justification for further investigation of the project area. Impacts of past construction have resulted in the removal of most of the original ground surface, where archeological resources would be located." (Public Archeology Laboratories, 1987).

It was suggested that, one small site in the wooded area at Watchemocket Cove, be investigated in greater detail. In the future, no construction will occur at this location and this property will remain deeded to the state and maintained by the proposed Condominium Association.

Project Description

The East Providence Planning Department has been meeting on a weekly basis with members of the Transcontinental Development Corporation to discuss elements of a concept plan for the development of the site. Many members of the local City Departments (Fire, Police, etc.) have also been present at meetings in order to discuss issues of personal safety and how they can be translated into the design of the project. The concept plan was presented to the members of the Planning Board and local residents on April 14, 1987. The project was generally well received, except for the issue of traffic generated by the site (for which actual numbers remain unresolved).

During the concept approval and development period, Transcontinental Development Corporation has also been meeting with the State Department of Environmental Management and the Coastal Resources Management Commission to discuss issues concerning the impact of the project on water bodies around and natural features on the site. To date, even though the concept plan has been approved by the Department of Environmental Management, no formal communication has taken place between the City of East Providence and the

Coastal Resources Management Commission.

The general elements of the Kettle Point project include:

(i) 100% residential development with a unit mix of approximately 60% mid-rise condominiums and 40% low-rise townhouses.

(ii) Private recreational facilities to be provided include a swimming pool, exercise room, tennis courts, indoor games and other entertainment facilities.

(iii) A total of 1200 parking spaces (2 spaces per unit) will be provided on site. Further, a public parking lot of approximately 100 spaces will be provided near Watchemocket Cove.

(iv) The project proposal also includes the construction of a marina, operating on a first come-first serve basis (with no gas or pumping station facilities), which will be opened to the public.

(v) The developer has proposed to set aside approximately 5700 linear feet of waterfront for public access (see Map 1.1). This area can be accessed by crossing through state property located directly adjacent to Interlocken Road, off Veterans Memorial Parkway. Transcontinental Development Corporation calculations show this will increase the City's total public waterfront access facilities by 44%.

(vi) The development proposal calls for "an exclusive waterfront community", which is to be managed by a

Condominium Association with an annual operating income of about $1,000,000 (professional Condominium Association). The Association will be responsible for on-site security and maintenance, as well as the maintenance of the public open space. The open space will be deeded to the state with an easement granted back to the developer who has a vested interest in its maintenance.

(vii) The construction of the complex is expected to be spread over a period of 6-7 years with about 6 phases of approximately 100 units each. On-site infrastructural development will accompany each phase (Transcontinental Development Corporation, 1987).

(viii) The property is presently zoned as industrial (I-2). The developer wishes to change the existing zoning and has filed an application for the rezoning of the site as a PUD. The decision is still pending. If successful, this will be the first use of the PUD overlay in the City. For this reason, the handling of the negotiations by the Planning Board and Planning Department is a "precedent setting" process. Briefly, the PUD is an overlay district, which can be applied to the City's zoning map and is applicable to an R-5 (residential) zoning district. In this case, the zoning may be changed to C-1 with a PUD overlay. The PUD allows the City to review the requested change of zoning for the new proposed use while at the same

time, reviewing the concept plan and subdivision requirements. Some of the critical characteristics of the East Providence PUD overlay are (Section 34-33.2, Zoning Ordinance, East Providence):

* To promote more economical and efficient use of the land while providing harmonious housing choices and opportunities.
* To allow flexibility in design and diversification in the overall design of a project.
* To promote the preservation of natural scenic qualities of open space, natural features, site amenities, recreational opportunities and historic features of a site, beyond that required by any other applicable law, ordinance, rules or regulations.
* To promote greater flexibility and consequently more creative and imaginative design for the development of residential and mixed use areas, than is possible under traditional zoning regulations.
* To ensure a harmonious, safe relationship between the PUD and adjacent areas.
* To give developers reasonable assurance of approval before incurring costs in final design and engineering.
* To coordinate the site plan and review process by integrating zoning and subdivision controls into the public review mechanism (in terms of time and

expense).

* And finally, to further the goals of the East Providence Master Plan (Section 34-33.2 C., Zoning Ordinance, East Providence).

Upon approval of the concept by the Planning Board, the developer will have 5 years to submit final plans for each proposed phase of the development. With a PUD of 30 acres or more, the developer can have as long as 7 years to complete construction.

Although a PUD application and concept plan are initially approved, the design plans for each phase are subject to stringent review prior to construction.

As can be seen, the PUD concept is a transition from previous strict "Euclidian" zoning, and gives greater flexibility in allowing a community to better achieve its goals. The concept is currently being applied by other communities in Rhode Island. One of the most attractive features of a PUD is its flexibility; the choice for the builder and the municipality to sit down together and tailor a development to meet the specific needs of the community and the requirements of the land on which it is to be built.

Research Objectives and Methods

The research objectives of this study are twofold. First, to provide technical assistance to the East Providence Department of Planning and Development in analyzing the traffic and fiscal impacts and also the pro forma - the financial and economic performance, of the Kettle Point

development, and second, to assist the City of East Providence, in the development of long-term, comprehensive waterfront development guidelines, to address issues which arose during our research, as well as those that might arise in the future development of the City's waterfront. To meet the first objective, the research focuses on the direct impact of the development on the transportation network surrounding the proposed site as well as the direct fiscal impact of the development on the City's tax base. The second objective is attained through a review of development impact issues which arose during the negotiations between the City of East Providence and Transcontinental Development Corporation as a part of the proposal and site plan review process.

During the study, other issues were raised, which have not been directly analyzed by this research. The project attempts to address these issues in the form of operational guidelines for future development along the waterfront. The issues include such topics as public access to the waterfront; the density of the proposed development; and the costs and benefits of public versus private developments.

Chapter Two of this study attempts to analyze the traffic impacts which will occur as a result of the Kettle Point project. Although the project is a residential condominium development, it has a mix of other land uses (marina, public recreational space) that would classify it as a Planned Unit Development (PUD). The traffic generated by a

PUD would be greater than that generated by a residential development. The study therefore analyzes trips generated from the development under both scenarios. First, assuming the development to be a condominium complex, and second, assuming the project to be a PUD. It then analyzes the effect of the trips generated on the surrounding road network. Primary data was collected to conduct a volume/capacity analysis. Based on the conclusions of the analysis, both, general and specific recommendations have been made.

Chapter Three is a fiscal impact analysis of the proposed development. It employs 2 methods of impact analysis; Service Standard method and the Per Capita Multiplier Method. It examines the proposal, first, as a privately managed development, and second, as one relying on City services. It analyzes the total population generated by the development, as well as the number of school children which will be added to the school system.

The role of the planner is rapidly moving away from subdivision review and enforcement of zoning regulations. The planner is increasingly being involved with proposals ranging from the design aspects of new projects to financing and legal aspects accompanying a development. In order to ensure that the needs of the community receive equal importance to those of the developer, the planner must work closely with the developer and must be aware of the financial goals of the developer. One tool which can aid the planner in this

respect is the real estate pro forma; "a projection of the economic performance of a proposed project. Planners can therefore use such an analysis to gauge the sensitivity of projects to changes in planning regulations and government incentives" (Dowall, D. E. APA Journal, Winter, 1985).

Chapter Four is a pro forma analysis of the proposed development and uses information obtained from the Transcontinental Development Corporation, as well as various real estate sources in the Providence Metropolitan Area. By determining the sensitivity of the project, to requests of the local government, the planner is better able to negotiate on behalf of the community. The issue of density is also discussed in this chapter, and several projects constructed statewide, are compared to the Kettle Point project.

Each of the three analysis chapters follows a similar format which includes goals, methodology and assumptions, interpretation of the analysis, and conclusions and recommendations.

Finally, Chapter Five focuses on the formulation of long-term waterfront development guidelines, which address the functional areas analyzed in this study, as well as the issues which were raised during negotiations between the City of East Providence and the Transcontinental Development Corporation.

CHAPTER II

TRAFFIC IMPACT ANALYSIS

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TRAFFIC IMPACT ANALYSIS

A major issue which will accompany future development along Veterans Memorial Parkway (VMP) and the East Providence waterfront is that of traffic impact. The following section is a preliminary analysis of the traffic impacts of the incumbent residential development on the surrounding traffic network. The analysis will reflect the compounded traffic impacts of 6 phases (approximately 100 units per phase) of project development over a 6 year period.

Although the analysis is concerned primarily with the direct traffic impact of this residential development, several other issues of critical importance are identified and discussed. These include:

(i) Traffic volume trends along Veterans Memorial Parkway;

(ii) Potential for future development in abutment with Veterans Memorial Parkway and subsequent impacts on the roadways;

(iii) Locations for access to the Kettle Point site;

(iv) Accident rates in the study area (1980 & 1986);

(v) Availability of Public Transportation along Veterans Memorial Parkway.

An analysis of the traffic impacts of the development has already been completed by Lee Pare Associates (Project No. 86089.00 Draft, February 1987). This analysis will provide the City of East Providence with a basis on which to

compare potential traffic impact scenarios.

Traffic Study Area

The project site is located on Veterans Memorial Parkway approximately 2.5 Miles from Route 195 and 12 minutes from the Providence Central Business District. Veterans Memorial Parkway, along with South Broadway and Pawtucket Avenue are the major thoroughfares carrying traffic north and south through the City. Veterans Memorial Parkway runs along the west side of East Providence along the Providence River and Narragansett Bay. It is abutted to the west by industrial development (primarily oil tank fields) and to the east by residential areas.

TABLE 2.1

CHARACTERISTICS OF ROADS

SR.NO	ROAD	LANES/ DIRECTION	ON STREET PARKING	TYPE	CAPACITY AT LOS "C"
1	VETERANS MEMORIAL PARKWAY	2 LANE	NO PARKING	ARTERIAL	800
2	SECOND STREET	1 LANE	ON STREET	LOCAL	440
3	BURGESS AVENUE	1 LANE	ON STREET	LOCAL	440
4	LYONS AVENUE	1 LANE	NO PARKING	COLLECTOR	640
5	SOUTH BROADWAY	2 LANE	NO PARKING	COLLECTOR	640
6	PAWTUCKET AVENUE	2 LANE	NO PARKING	ARTERIAL	800

SOURCES: PRIMARY TRAFFIC SURVEY, MARCH 1987.
UTPS DEFAULT CAPACITIES, RI STATEWIDE PLANNING

NOTE: * CAPACITY/LANE/HOUR

The study area for the traffic analysis includes the following intersections as they will be directly impacted by the incumbent development:

(i) VMP & Second Avenue (Station 1);

(ii) VMP & Burgess Avenue (Station 2);

(iii) VMP & Lyons Avenue (Station 3);

(iv) VMP & South Broadway (Station 4);

(v) VMP & Pawtucket Avenue/Bradley Hospital Drive (Station 5).

A detailed description of the characteristics of these roadways (e.g. no. of lanes, on/off street parking, signalized/unsignalized) is provided in Table 2.1.

Methodology and Assumptions

The methodology used in this analysis involves 6 steps which are outlined below:

(i) Land-use determination;

(ii) Existing volumes;

(iii) Trip generation;

(iv) Directional distribution;

(v) Trip assignment;

(vi) Volume/capacity analysis (existing and projected volume/capacity (V/C) ratios).

Land use determination

Land-use determination will focus on the information obtained from the Transcontinental Development Corporation. The analysis will include information regarding the total number and types of of units, as well as the proposed access

points.

Existing volumes

Existing volumes were established through primary data collection at the aforementioned locations. Traffic counts were taken at 15 minute intervals, between 6:00-9:00 AM and 3:00-6:00 PM, during a two week period in late March, 1987. (See Appendix A for specific dates and weather conditions).

Trip generation

The number of trips generated by the project has been obtained from the most recent (Third Edition, 1982) Institute of Traffic Engineers (ITE) Informational Report. The traffic generation multiplier is per dwelling unit. Because trip generation rates in the ITE Manual are obtained through national surveys, this analysis uses two sets of multipliers; first for condominiums and second for PUD's. Condominiums are defined by the ITE as "single family ownership units that have at least one other single family owned unit within the same building structure. Both condominiums and town houses are included in this category. PUD's are described as "developments containing a combination of residential units. It can also contain some supporting uses such as limited retail and/or recreational facilities." (ITE, 1983)

The traffic impact analysis completed by Lee Pare Associates employs a "condominium" multiplier of 5.9 trips/unit ("Highway Engineering", Clarkson H. Oglesby & R. Gary Hicks, 4th Edition published by John Wiley & Sons, 1982). The equivalent category in the ITE Manual shows a

multiplier of 5.2 trips/unit. The results in both cases are similar due to the possible inclusion of a marina on the site and the definite inclusion of public access to the waterfront portion of the site. It is likely that the number of trips generated will be increased. Thus, this analysis also calculates the traffic impact using a PUD multiplier of 7.2 trips/unit.

Directional distribution and Trip assignment

Directional distribution is the identification of the percent distribution of site-generated vehicle trips on the major approach roads to the development. The directional distribution approach used in this analysis is based on the percent of vehicular trip distribution observed in the traffic count survey. The projected trips generated by the project will be assigned to the road network using the percentages derived through the directional distribution. This method is the most practical method of trip assignment analysis in the absence of detailed origin-destination information.

Volume/capacity Analysis

Volume/capacity analysis includes the following steps:

(i) Determination of existing road network capacities - In this case the capacity has been determined using Urban Transportation Planning System (UTPS) computer model default values. UTPS figures have been obtained from Rhode Island Statewide Planning. The capacities have been based on the level of service (LOS) C.

(ii) Existing V/C ratios - ratio of the existing volumes (AM peak, PM peak & ADT volumes) to the capacity of the road network;

(iii) Projected V/C ratios - ratio of projected volumes (AM peak, PM peak & ADT volumes) to the capacity of the road network.

Following these calculations, the closer the resulting ratios are to 1.0, the closer the roadways are to capacity at Level of Service `C'. Areas with V/C ratios greater than 1.0 are determined to be potential traffic congestion areas.

Assumptions

The analysis and methodologies are based upon the following assumptions:

(i) Multipliers and other relevant information will be based on the characteristics of the development. The figures used may be subject to variation as changes in the characteristics of the development are made in the future;

(ii) A negligible number of trips are assignable to transit, bicycling or walking;

(iii) Variations in trip generation rates may exist (i.e. regional, proximity to urban cores, seasonal & daily);

(iv) Observed directional distribution patterns are sound indicators of future distributional patterns.

Proposed New Land Use

For the purpose of this analysis, the development is assumed to include the following features:

(i) A total of 600 residential units;

(ii) The project will be completed in 6 phases (of approximately 100 units each) over as many years;

(iii) A unit mix of 40% town houses and 60% condominiums

(iv) 10% of all units will be one bedroom, 85% two bedroom and 5% three bedroom;

(v) The proposed development is to be designed as a Planned Unit Development (PUD) (Transcontinental development company, 1987).

Existing Volumes

Through the collection of primary data (traffic survey) the existing traffic volumes for the study area were determined. Map 2.1 shows the results of the traffic counts. During both the AM and the PM peak periods, most local roadways intersecting with Veterans Memorial Parkway are below capacity at Level of Service "C". Peak hour volumes on these roadways range from as low as 17 trips on Burgess Avenue to as high as 169 trips on South Broadway (AM trips/hour) and 27 and 233 trips/hour respectively during the PM peak. This suggests that at present these roadways are not serving as through streets to Taunton Avenue and other points west of Kettle Point. It is highly likely that these roadways will continue to accommodate relatively low volumes of traffic accessing the residential areas.

Traffic volumes are dramatically higher along Veterans Memorial Parkway, most notably, in the area located between South Broadway and the intersection of Pawtucket Avenue and

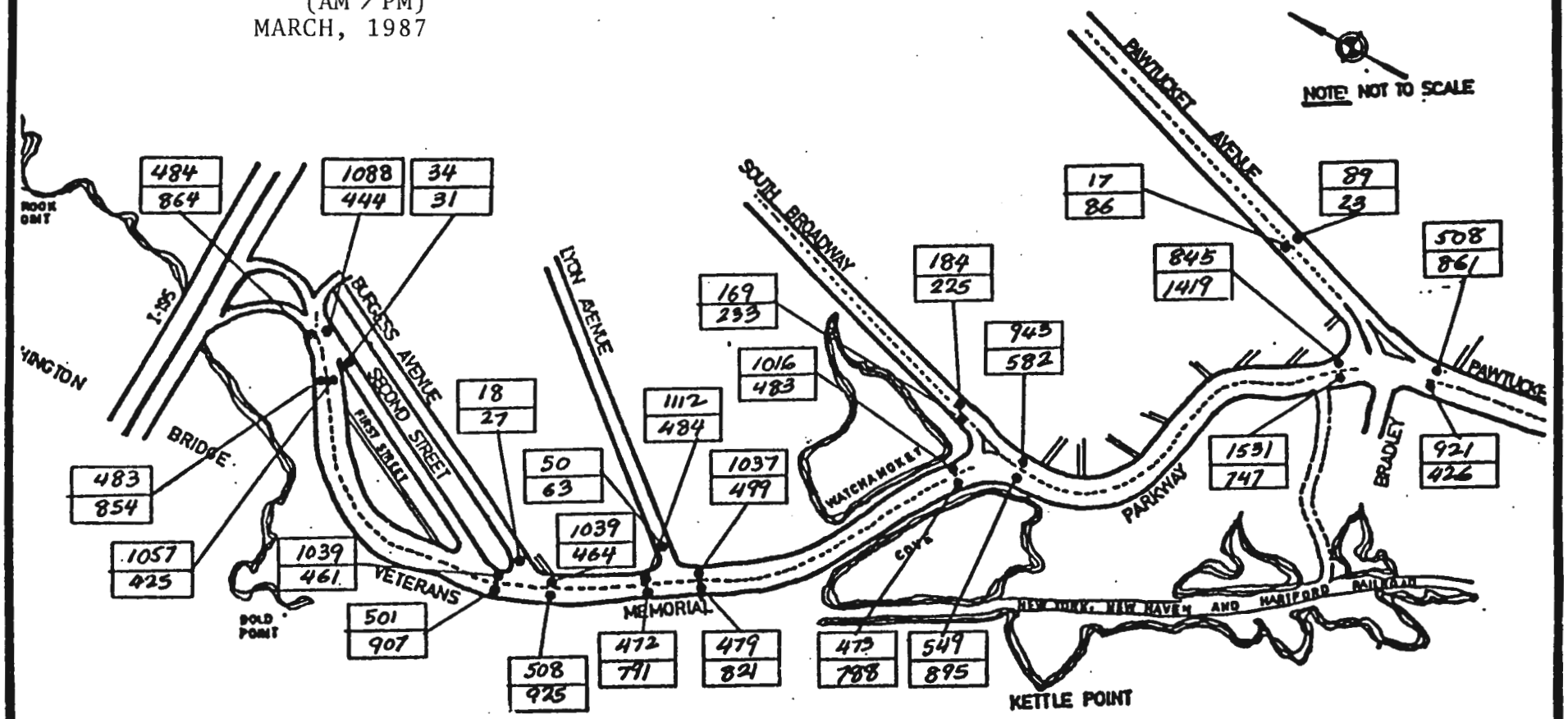
Veterans Memorial Parkway south of the development site. As can be seen on Map 2.1, Veterans Memorial Parkway north-bound towards Providence carries an average AM peak volume of approximately 1000 trips/hour. Similarly, during the peak PM period the average volume south-bound is approximately 850 trips/hour. The opposite travel lanes carry approximately one-half of these volumes during the AM and PM peak periods. During the AM, the average peak hour volume is approximately 682, while the PM volume is 644 trips/hour. The lanes along Veterans Memorial Parkway have been treated as independent roadways for the volume capacity analysis due to the significant difference in the volumes during the peak periods.

Significant Trip Generators

Within the and around the study area, there are at least two nodes which add significantly to traffic volumes on the Parkway. These include the school and also Bradley Hospital located across the intersection of the Parkway and Pawtucket Avenue. The increase in the traffic volumes due to these nodes is highest between 7:00-8:00 AM and 3:00-4:00 PM.

In summation, Veterans Memorial Parkway carries large amounts of traffic north and south on the west side of the city. The traffic flow turning off into the residential areas between the intersections of Pawtucket Avenue and I-195, is insignificant. The Parkway is used to a greater extent in the north-south circulation than is Pawtucket Avenue. Although some back-ups occur behind turning vehicles

PEAK HOUR TRAFFIC VOLUMES
(AM / PM)
MARCH, 1987



CPAD, URI	KETTLE POINT RESIDENTIAL DEVELOPMENT TRAFFIC IMPACT ANALYSIS	MAP 2.1

all along this section of the Parkway, congestion is most notable at the intersections of Veterans Memorial Parkway with Pawtucket Avenue and Veterans Memorial Parkway at South Broadway.

Existing Capacities

The capacities of the roadways have been determined using a standard Level of Service "C". Table 2.1 shows roadway characteristics and capacities used to calculate the volume capacity (V/C) ratios.

Trip Generation

As stated in the methodology the projected trips generated for the incumbent development are calculated using both a condominium and PUD scenario. Both scenarios generate significantly different average daily trips and peak hour trips. Table 2.2 shows trip generation figures used for the condominium scenario. The average daily traffic generated by the site using this multiplier is 3120 trips with a possible 7080 trips generated in a "worst case scenario". This figure is further broken down to show trips attracted to and leaving the development during the peak hours. The Lee Pare study projects a total of 3540 trips generated by the incumbent development (Traffic Analysis for Kettle Point Condominium Complex, Lee Pare, March 4th 1987).

The PUD multiplier yields a total of 4680 trips per day with a maximum (worst case scenario) of 8640 trips generated. A total of 420 and 480 trips have been projected for the AM and PM peak periods respectively (Table 2.3).

TABLE 2.2

TRIP GENERATION FROM DEVELOPMENT
CONDOMINIUM SCENARIO

LAND USE GENERATOR	# OF UNITS	DAILY TRIPS	VEHICLE TRIP RATES: PEAK HOUR					
			AM			PM		
		MEAN	IN	OUT	TOTAL	IN	OUT	TOTAL
CONDOMINIUM SCENARIO								
AVERAGE TRIP RATE	600	3120	42	222	246	222	108	306
MAXIMUM TRIP RATE	600	7080	90	432	570	438	180	744

SOURCES: TRANSCONTINENTAL DEVELOPMENT CORPORATION; AND
ITE TRIP GENERATION INFORMATION REPORT,
THIRD EDITION, 1982.

TABLE 2.3

TRIP GENERATION FROM DEVELOPMENT
PUD SCENARIO

LAND USE GENERATOR	# OF UNITS	DAILY TRIPS	VEHICLE TRIP RATES: PEAK HOUR					
			AM			PM		
		MEAN	IN	OUT	TOTAL	IN	OUT	TOTAL
PUD SCENARIO								
AVERAGE TRIP RATE	600	4680	60	300	420	300	180	480
MAXIMUM TRIP RATE	600	8640	0	0	0	0	0	0

SOURCES: TRANSCONTINENTAL DEVELOPMENT CORPORATION; AND
ITE TRIP GENERATION INFORMATION REPORT,
THIRD EDITION, 1982.

Trip Distribution and Assignment

For the purpose of assigning trips to the study area network, the basic assumption has been made that of those trips leaving the development onto Veterans Memorial Parkway, 70% will head north towards Providence and 30% will head south towards Pawtucket Avenue. Likewise, 70% of the trips attracted to the site will enter from the north and 30% from the south.

The greater the distance traveled from the site, the more difficult it becomes to accurately project the pattern of traffic distribution. Since traffic counts taken in the study area include all turning motions, it is possible to identify the percentage of traffic leaving and entering the flow on Veterans Memorial Parkway between Route I-195 and the intersection of Pawtucket Avenue and Veterans Memorial Parkway.

For the purpose of this study, it is assumed that the trip distribution observed during the traffic survey, accurately reflect future patterns of traffic distribution. This assumption is supported by the fact that only a relatively small portion of the traffic in the study area is accommodated by the side streets. For the purpose of this analysis, the trips entering and leaving the site are assigned to the network according to the existing pattern of distribution. Figure 1 in Appendix A shows the trip assignment pattern.

Volume/Capacity Analysis

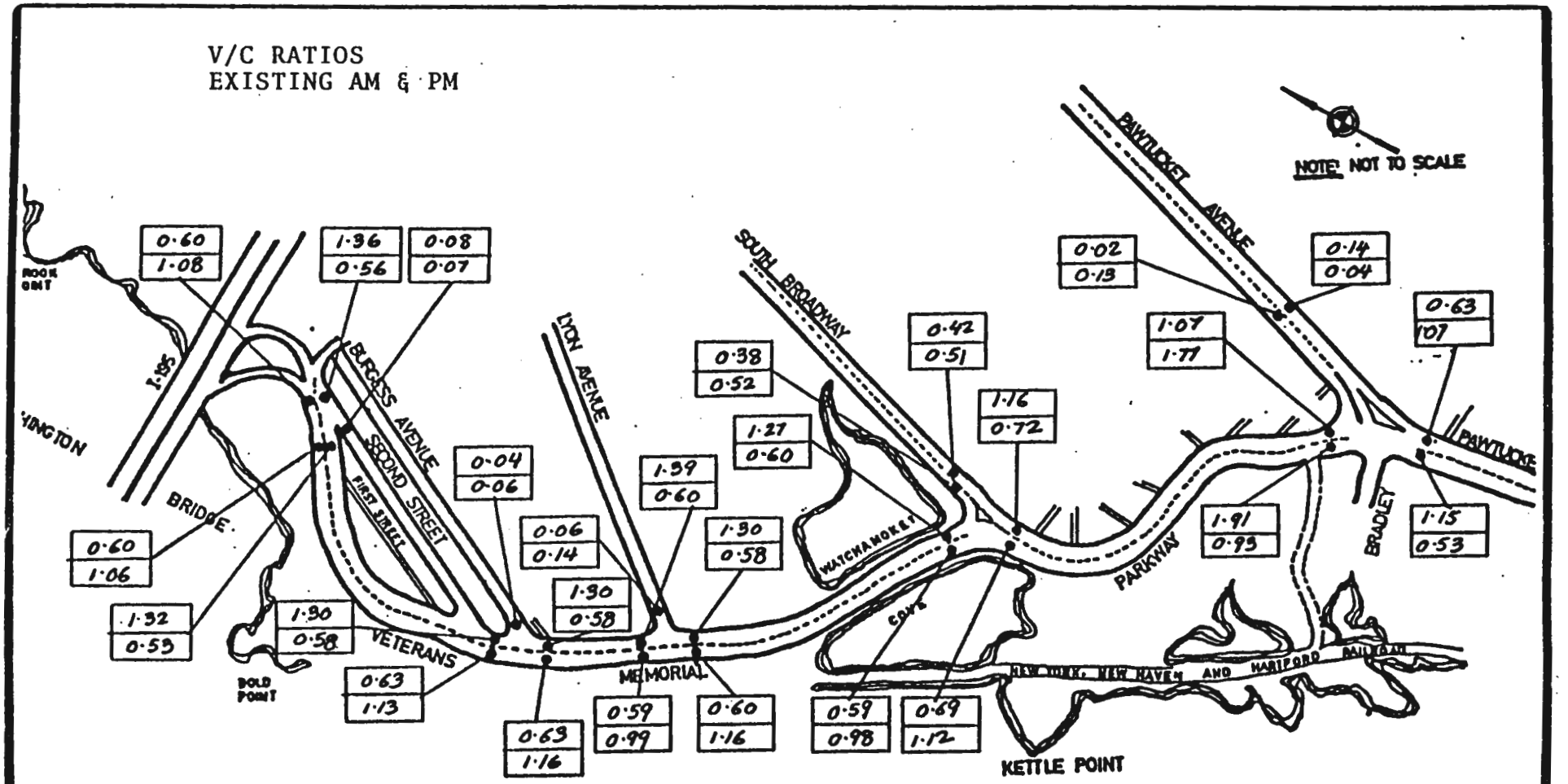
Using the existing volumes, capacities and trips generated by the proposed development, it is possible to determine the existing volume/capacity (V/C) ratios as well as to project future volume/capacity ratios.

This portion of the analysis is divided into 3 sections. First, it describes the existing V/C ratios in areas of concern. Second, it projects future V/C ratios generated by the condominium scenario. And finally, it projects future V/C ratios generated by the PUD scenario. Both AM and PM peak V/C ratios are considered in this analysis.

Existing V/C ratios (AM and PM)

As was anticipated, Veterans Memorial Parkway has presently reached, and in some cases has surpassed its capacity at Level of Service "C". Most notably, the V/C ratio far exceeds 1.0 at the Pawtucket-VMP intersection (1.91 south-bound AM and 1.77 north-bound PM). Conversely, the V/C ratios on Pawtucket Avenue fall far below capacity during the peak hours. This suggests that Veterans Memorial Parkway is the primary north-south circulation route in this section of the City. Map 2.2 indicates existing V/C ratios for the AM and PM peak periods.

A possible area of future concern is South Broadway which is presently operating at approximately half its capacity at LOS "C". Also, it has been determined that its intersection is presently operating between LOS "E" and "F" during peak hour traffic (Lee Pare Assoc., 1987).



CPAD, URI	KETTLE POINT RESIDENTIAL DEVELOPMENT TRAFFIC IMPACT ANALYSIS	MAP 2.2

In general, the volumes presently accommodated by the remaining residential side streets that intersect Veterans Memorial Parkway fall below capacity.

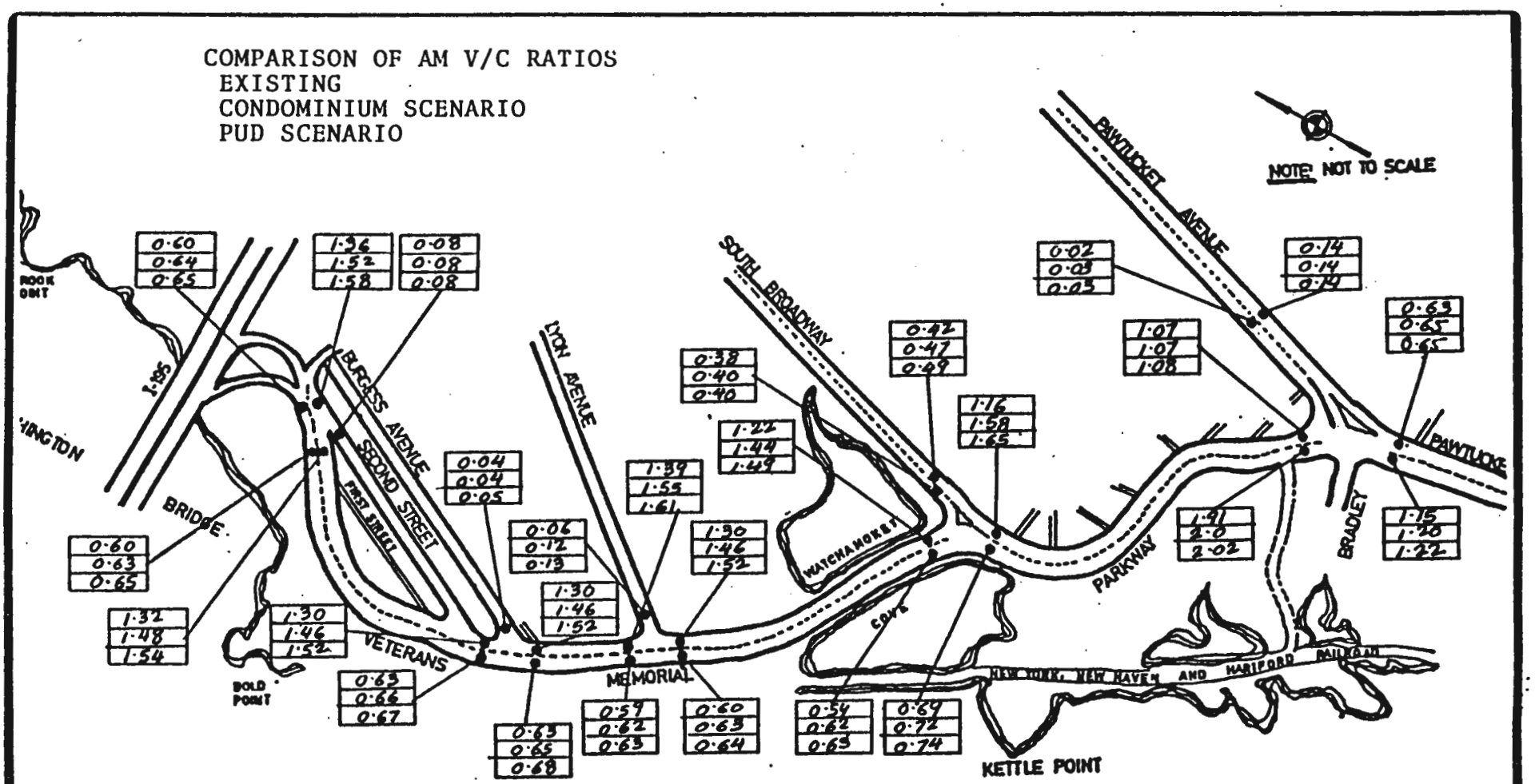
Maps 2.3 and 2.4 reflect the effect that the traffic generated by the incumbent development may have on the existing levels of service in the two scenarios.

Comparison of Scenarios

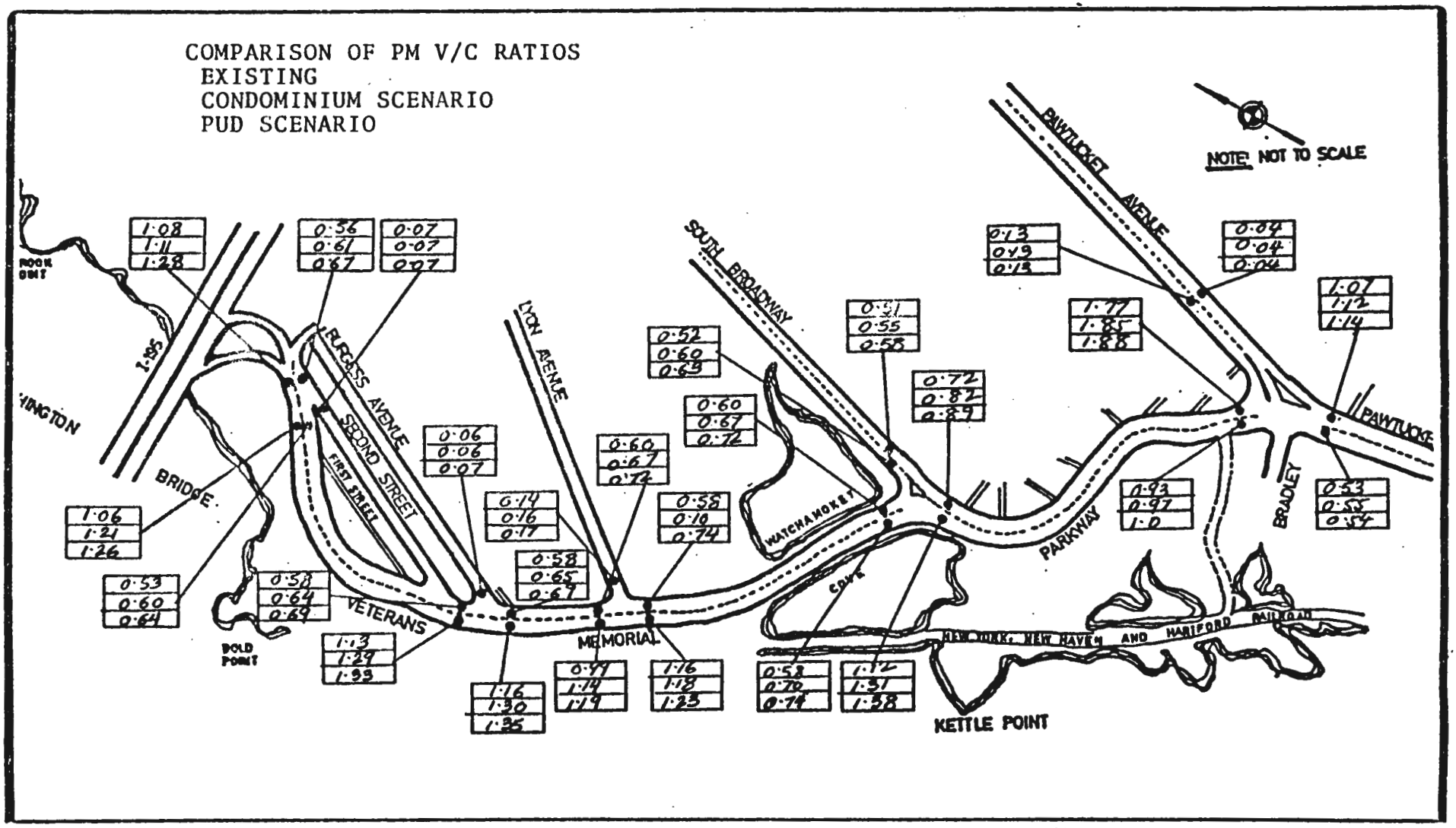
Overall, it can be seen that the projected traffic generated by either scenario, does not significantly affect the V/C ratios or the Level of Service on the roadways in the study area. In both scenarios, the greatest increase in V/C ratios due to the traffic volumes resulting from the proposed development is no more than 0.49 per lane (South Broadway-VMP intersection). As can be seen in Maps 2.3 and 2.4 (which compare AM and PM V/C ratios for the existing and proposed scenarios), areas of particular concern in the analysis of existing conditions; Veterans Memorial Parkway where it is intersected by Pawtucket Avenue; South Broadway where it intersects Veterans Memorial Parkway; and other intersections along the Parkway, are likely to require greater consideration in the future.

The traffic generated by the incumbent development will not significantly increase the V/C ratios on the roadways, it will however, increase congestion levels during the peak hours on already congested "hot spots" along Veterans Memorial Parkway.

A possible result of this increase in traffic volumes



CPAD, URI	KETTLE POINT RESIDENTIAL DEVELOPMENT TRAFFIC IMPACT ANALYSIS	MAP 2.3



CPAD, URI	KETTLE POINT RESIDENTIAL DEVELOPMENT TRAFFIC IMPACT ANALYSIS	MAP 2.4

could be a change from the relatively "stable" flow of traffic, with a small percentage of back-ups developing behind turning vehicles, to an increasingly "unstable" flow of traffic, with a larger percentage of back-ups and vehicles waiting for longer than one light cycle (Pawtucket Avenue-VMP intersection).

Levels of Service

This analysis shows that many of the intersections analysed are grossly over capacity at LOS "C". To specifically identify the LOS on the Veterans Memorial Parkway, capacities for LOS "D" and "E" have been applied. It has been determined that many of the intersections in the study area are presently operating at LOS "D" and "E". The existing and projected conditions for the major and minor intersections in the study area are described below.

Summary of Intersection Analysis and Comparison with Lee Pare Findings:

Minor Intersections

Two minor intersections analysed were the intersections of Second Street & Veterans Memorial Parkway and Burgess Avenue & Veterans Memorial Parkway. Both Burgess Avenue and Second Street are significantly below capacity at AM and PM peaks. Further, they are impacted insignificantly as a result of the incumbent development. Veterans Memorial Parkway, where it intersects the abovementioned streets is presently operating at or above capacity at LOS "D" (e.g. northbound during the AM peak, approximately 1.09 V/C ratio).

With the additional traffic as a result of the incumbent development, the V/C ratio will increase to 1.35 (according to the condominium scenario) and 1.40 (according to the PUD scenario). As can be seen, the V/C ratio or the LOS does not change dramatically as a result of the additional traffic.

Major Intersections:

Lyons Avenue: The existing level of traffic on Lyons Avenue is significantly below its capacity. However, as was the case with the aforementioned intersections, the intersection of Veterans Memorial Parkway with Lyons Avenue is presently operating at or above capacity at LOS "D". Minor delays do occur behind turning vehicles, especially at peak hours. While it is anticipated that Lyons Avenue will not be severely impacted by the proposed development, the intersection could prove to be a "trouble spot" in the future.

South Broadway: The analysis indicates that South Broadway is presently operating at approximately 50% of its capacity at LOS "C" (Map 2.1). However, considerable concern was expressed about this roadway by community members when the concept plan for the Kettle Point development was presented at the April 14th meeting of the East Providence Planning Board. Although the trip assignment suggests that the street itself will not be severely impacted by the development, it is expected that a large percentage of the traffic using the public access to the site will also use South Broadway. Further, the prohibition of trucks along Veterans Memorial

Parkway and Burgess avenue is likely to increase the use of South Broadway by trucks during the phases of construction over the next 6 years. The analysis shows that the intersection is presently operating at or above capacity at LOS 'D'.

The Lee Pare analysis indicates higher traffic levels at this intersection. Their results show that the intersection is presently operating at LOS 'E' (excessive congestion) and 'F' (gridlock, for left turns onto Veterans Memorial Parkway). The traffic generated by the proposed development is likely to aggravate these already existing traffic problems (Lee Pare: Traffic Analysis, 1987).

Pawtucket Avenue: Traffic on Pawtucket Avenue is determined to be below capacity at LOS 'C'. Where it intersects with Veterans Memorial Parkway, the V/C ratios are significantly higher. For example, the V/C ratio for the northbound lane is 1.53 at LOS 'E' (AM peak). This figure is approximately the same for the opposite movement during the PM peak. With the addition of traffic from the development, this V/C ratio will increase to approximately 2.00 at LOS 'E' (of LOS "F") in both scenarios.

In summation the findings of this analysis of existing conditions and projected impacts of the development are similar to those derived by Lee Pare Associates. General conclusions which can be reached include:

(i) Most residential streets intersecting with Veterans Memorial Parkway are presently operating considerably

below capacity during peak hours. An exception is South Broadway which accommodates higher volumes of traffic and which is expected to carry much of the traffic during the construction and occupation of the proposed development;

(ii) Veterans Memorial Parkway, at most intersections, is presently operating between levels of service 'D' and 'E' during daily peak hours.

(iii) The development is expected to add to the congestion especially during the peak hours but is not expected to alter the existing levels of service dramatically.

The fact that many local streets adjacent to the site of the proposed development are presently operating below capacity is not meant to suggest that they should be used to a greater extent in the future. These roadways abut residential properties and every effort should be made to maintain the residential nature of the roadways and keep neighborhood traffic volumes to a minimum. Although, the proposed development is not expected to significantly alter existing Volume/capacity ratios of the surrounding network, levels of service are already below what is desirable to local residents.

Public Transportation

Trip generation and volume/capacity analysis does not account for the variety of other modes of transportation which may be available to future residents of the development (e.g. walking, car pooling, public transit). Alternative modes of

transport as well as elements of traffic management systems are discussed in the final chapter of this report (Recommendations). However, a brief discussion of the issues surrounding the expansion of the RIPTA bus lines is presented below.

The only existing bus line to service this part of the city, linking it to the Providence CBD is Route 36, (Warden St.). The closest that this route comes to the site of the proposed development is at the intersection of South Broadway and Warren Avenue or the intersection of Vincent and Martin Streets. Table 2.4 shows the existing operating capacities of this route during the three main time periods of the day.

TABLE 2.4

PUBLIC TRANSPORTATION: OPERATING CAPACITY
(ROUTE 36 - WARREN AVENUE)

PERIOD	CAPACITY	RIDERS	% OF TOTAL CAPACITY
7:00-9:00 AM	1134	430	37.92
3:00-6:00 PM	1827	621	33.99
9:00 AM-3:00 PM (OFF PEAK)	1638	563	34.37

NOTE: * CAPACITY IS A FUNCTION OF TOTAL TRIPS DURING EACH PERIOD AND THE MAXIMUM POSSIBLE NUMBER OF RIDERS PER BUS.
* MAXIMUM NUMBER OF RIDERS PER BUS = 63 (RIPTA, 1987).

SOURCE: RI PUBLIC TRANSPORTATION AUTHORITY, 1987

The route is presently operating at only a fraction of its capacity during all three time periods. However this is not the major factor to be considered in making the decision

to expand or alter the existing bus routes. Several issues appear to be of critical importance. First, through past studies, RIPTA has determined that expansion of the services it provides in this area would be difficult with out the addition of new buses (the desire not to alter existing schedules being the critical factor). In order to add new busses, RIPTA must adhere to the new Urban Mass Transportation Authority (UMTA) privatization policy. This policy requires that RIPTA solicit bids from and compete with, private contractors wishing to operate the new bus route. The new contractor is then chosen according to state and MPO guidelines.

RIPTA cannot promise any extension or additions to existing routes in order to serve the new developments along the Veterans Memorial Parkway. Secondly, Veterans Memorial Parkway is not equipped to accommodate heavy bus traffic and is not presently open to such vehicles. This issue will have to be given greater consideration as traffic congestion due to waterfront development increases the demand on public transit in this area. Officials at RIPTA do recognize the potential for future growth in this area of East Providence and subsequent increasing demands on the public transportation network.

Access to the site

At the present time there exists only one location for vehicular asses to the development site; adjacent to Interlocken Road, near the intersection of Veterans Memorial

Parkway and South Broadway(Brown, RIPTA, 1987).

A site distance analysis conducted by Lee Pare Associates studied several likely points of access and egress using safety standards provided by the American Association of State Highway Transportation Officials (AASHTO). It was concluded that the best and safest location for a point of access to the development is at the crest of the hill an the Veterans Memorial Parkway 250 feet north of the access to the Squantum Woods Park. This intersection would be signalized.

It has also been suggested that the existing entrance be used for only public access to the waterfront and construction equipment (Lee Pare, Traffic Impact, 1987).

Accident Analysis

A preliminary investigation of the accidents occurring in the study area is provided below. The analysis helps to identify "trouble-spots" or areas of frequent accident occurrence along the Veterans Memorial Parkway. Although accidents may not necessarily be linked directly to traffic volumes, the analysis does indicate that the total number of accidents along the Veterans Memorial Parkway have increased since 1983.

Table 2.5 compares accident data from the years 1983 to 1986 (DPW, E. Providence, 1987). Veterans Memorial Parkway, in the study area has been experiencing an average of 58 accidents per year. As can be seen, a significant number of those accidents have been occurring at a previously identified area of congestion; the intersection of the

Veterans Memorial Parkway and South Broadway. (19.6% of average accidents from 1983-1986). Other locations experiencing significant concentrations of accidents include the intersection the Veterans Memorial Parkway and Interlocken Road, directly across from the public access to the site and the intersection of Veterans Memorial Parkway and First Street (not a count location).

TABLE 2.5

ACCIDENT ANALYSIS: ALONG VETERANS MEMORIAL PARKWAY
(1983-1986)

ROADWAY	1983	1984	1985	1986	% OF AVERAGE ACCIDENTS
SECOND STREET	0	2	0	1	1.30%
FIRST STREET	4	1	6	9	8.70%
BURGESS AVENUE	0	0	2	2	1.74%
LYONS AVENUE	3	0	5	1	3.91%
SOUTH BROADWAY	6	16	11	12	19.60%
INTERLOCKEN ROAD	4	6	6	4	8.70%
MOUNTAIN ROAD	2	4	4	3	5.70%
PAWTUCKET AVENUE	1	3	1	5	4.34%
TOT. ACC. ALONG VMP	44	60	64	62	100.00%

SOURCE: DEPARTMENT OF PUBLIC WORKS, EAST PROVIDENCE, 1987.

It is highly likely that an increase in traffic volumes, as a result of future waterfront development will result in a

greater occurrence of accidents along the parkway, particularly in the identified areas of serious congestion.

Conclusions and Recommendations

The preliminary analysis of traffic circulation within the study area and the analysis of projected impacts of the proposed residential development presents two issues of critical importance to be addressed during the evaluation of proposals for future development along Veterans Memorial Parkway. First, although the traffic generated by the proposed development at Kettle Point does not appear to significantly alter the existing levels of service on the network in the study area, it will add to already existing traffic congestion, primarily in the area between South Broadway and Pawtucket Avenue. Specific recommendations to address the problems created by the traffic generated by this development as well as recommendations for circulation within the private development are listed below.

(i) Analyze the feasibility of a second point of access and egress for the complex in order to reduce the loading and unloading of traffic at any one location on Veterans Memorial Parkway.

(ii) A detailed analysis of traffic conditions along Veterans Memorial Parkway and in the bordering residential areas and the investigation of the possibility of signalizing other areas of the Veterans Memorial Parkway.

(iii) The provision of safe public walkways and crosswalks to

the areas of public access along the waterfront. Three potential locations include:

(a) The intersection of Veterans Memorial Parkway and South Broadway;

(b) The intersection of Veterans Memorial Parkway and Interlocken Road;

(c) The intersection of Squantum Woods and Veterans Memorial Parkway

(d) The proposed site for access and egress to and from the development.

(iv) Ensuring that the sidewalks, roadways and curbing within the development are constructed to the same standards as public roadways (as safeguard against the possibility of the condominium association failing and the burden of the maintenance of the on-site infrastructure falling upon the city.

Second, the fact that this development alone will not dramatically affect existing traffic levels on the Veterans Memorial Parkway should be taken with caution for the following reasons:

(i) The traffic impact analysis provided above does not take into account future traffic levels on Veterans Memorial Parkway (expected to increase). It reflects traffic impacts of the project as if the development were in operation today with all six phases completed. The unavailability of consistent past data for a trend analysis makes it difficult to project with accuracy,

traffic volume in the future. It is assumed however, that the traffic levels along the Veterans Memorial Parkway will increase with waterfront development.

(ii) The Kettle Point development, being the first in what looks to be several years of waterfront development, and the first use of the PUD overlay, make the City's handling of this a "precedent setting" process.

For these reasons, the community will need to address the problems of potentially undesirable traffic impacts of development with the help of waterfront development guidelines. Issues critical to long term waterfront development guidelines are discussed in the final chapter of this report. This section also addresses long-term implications of issues raised during negotiations between the City and Transcontinental Development Corporation.

Essential elements of long-term guidelines to mitigate the effects of future developments on the circulation and the infrastructure include;

(i) Studies to analyze the feasibility of signalizing and making design improvements to intersections along the Parkway;

(ii) Long-term improvements to the parkway;

(iii) Allowances for trucks and public transportation vehicles during certain periods of the day (e.g. peak hour truck restrictions).

(iv) Work rescheduling for non-residential land uses (staggered work hours);

(v) Promotion of car pooling, van pooling, and human powered travel modes;

(vi) Relocation and addition of transit stops and routes to service the waterfront.

(vii) Ensure that on-site infrastructural elements meet local design and construction standards for public roads.

(viii) All long-term programs should necessarily include a full scale study of traffic conditions around a proposed development site (with an emphasis on identifying potential locations for future congestion) as well as an of the potential trips generated by the proposed land use and its impact on the community. Such studies should be at the expense of the developer as part of the permit application process.

CHAPTER III

FISCAL IMPACT ANALYSIS

CHAPTER III

FISCAL IMPACT ANALYSIS

Why Fiscal Impact Analysis?

At a time when Federal aid to communities has been eliminated, and State aid continues to be limited, communities have to increasingly rely on their own fiscal strength. The consequent strain on City budgets is becoming an increasing source of concern to public officials. Communities might therefore resort to developing open or relatively undeveloped land for more "lucrative" development. In doing so, they often neglect to assess the actual benefits that would accrue to the community as a result of such development.

Commercialization, unmanageable growth and destruction of the natural environment does not have to be the inevitable result of growth. With careful planning, it is possible to guide a community's development while retaining its identity and character.

One of the measures for such planning includes the computation of public costs associated with private development, major rezonings and alternative land use plans. Quantification of all the impacts that any development may have on the community is not easy (how does one quantify the social or recreational impacts of a development?). There are however, methods of calculating the monetary benefits and liabilities incurred by any development; such as fiscal

analysis. Fiscal impact analysis focuses on the direct, local costs and revenues accruing to the City as a result of a certain development. Such an analysis, although not the sole consideration for evaluating a project's desirability, can prove to be immeasurably useful. Some of its benefits include:

(i) Projection of service requirements; primary public costs associated with the development;

(ii) Projection of revenues generated by the project;

(iii) By conducting a cost-revenue analysis, it is possible to evaluate the relative benefits of projects;

(iv) Based on the above analysis, a community can monitor the cost of land use decisions;

(v) In order to offset the public costs incurred by a development, the community can charge a developer "impact fees" (which could be determined through the cost-revenue analysis);

Fiscal impact analysis is therefore a method that communities can use to regulate growth and maintain long-term stability by comparing fiscally beneficial decisions with those that are not.

Source, Definitions and Concepts

The source of the fiscal impact study applied in this report is "The Fiscal Impact Handbook" by Robert W. Burchell and David Listokin (1983). Data used for the development of the fiscal impact models were gathered prior to 1978. Rapid changes in demographic and economic and social compositions

of the population both at the national and the regional level may limit the analysis to some extent. However, these methods represent the most recently developed models for fiscal impact analysis. Also, in order to offset the abovementioned limitations, primary data has been used in the analysis wherever possible. It is hoped that the models for the analysis applied in this case will provide the City of East Providence with a workable document to evaluate the fiscal effects of land use decisions in the years to come.

Fiscal impact analysis, as used in this report, can be defined as,

"A projection of the direct, current, public costs and revenues associated with residential or nonresidential growth to the local jurisdiction(s) in which this growth is taking place." (R. Burchell and D. Listokin, 1983.)

The following paragraphs define the concepts and terms relevant to the analysis.

Fiscal impact analysis considers only the direct impact i.e. it projects only the primary costs incurred, and the immediate revenues generated by a proposed development. Indirect impacts are not quantifiable due to the near impossibility of accurately predicting the secondary effects of growth.

It examines current (most recent) costs and revenues i.e. it calculates costs and revenues a development would generate if it were operating in the present time. It therefore assumes that the rising costs of public services

will be matched by a comparable increase in revenue - the relationship of costs and revenues will remain more or less constant over time. Costs include the operating expenses and capital outlays directly incurred , while revenues comprise the monies that the local jurisdiction receives, as a result of a development.

Further, the analysis is concerned with the cost and revenue implications of population and/or employment change due to a specific development. It predicts and evaluates the population and/or employment change in either the public or private sectors.

Fiscal impact analysis is concerned only with public (governmental) costs and revenues. It therefore does not consider the private costs of public actions e.g. the cost to the developer or consumer due to a change in the local land use regulations. Therefore, special assessments on real property or the value of land dedications required of developers are considered to be private revenues.

Finally, costs are projected only in context of the local jurisdictions in which the development is taking place. It does not consider services administered by and revenues flowing to county governments, regional authorities and states.

Municipal cost calculations

There are basically two approaches to the allocation of public costs; average costing and marginal costing. In the case of average costing, the costs attributed to a

development are a function of the average cost per unit of service times the number of units (houses/population/ employees generated as the case may be).

This method does not take into account the existing excess or deficient capacity of particular services (the development may fall at the threshold level, therefore requiring capital investment to accomodate the increased growth). Average costing views the relationship of the costs associated with a development as linear.

Marginal costing however, takes into account the potential deficiencies of the average costing approach. It carefully analyses the existing supply/demand ratios for public services. This approach therefore views growth as having a cyclical impact on local expenditures.

Both these methods yield similar estimates of fiscal impact, in the long run. Marginal costs may be low in communities which have reserves of unused facilities, while being high when services have reached their maximum capacity. Choosing either approach depends on the existing situation in the community and the goals of the impact analysis.

In this particular analysis, the Per Capita Multiplier Method and the Service Standard models of fiscal impact analysis have been used. Both methods are average costing approaches for analysing the impacts of residential development. A more detailed explanation of the characteristics of each method has been provided in the latter part of this section. The methods have been chosen

keeping in mind the data requirements and their availability at the local level, the relevance of the available data to the present time, the characteristics of both; the City and the development, and the level of detail that these methods provide.

Most of the functions in the City's public service system have the capacity to handle the proposed development and hence the average costing approach is applicable in this case. However, wherever the services (such as the school system) may not be capable of accommodating the growth effects of the development, a more in-depth supply/demand analysis has been conducted.

Project

The Kettle Point project is a waterfront residential development; the first of its kind in the City of East Providence. Based on the information from the Transcontinental Development Corporation and the City of East Providence, the fiscal impact analysis has been conducted using the following assumptions; the development includes:

(i) A total of 600 residential units;

(ii) The project will be completed in 6 phases (of approximately 100 units each) over as many years;

(iii) A unit mix of 40% townhouses and 60% condominiums;

(iv) 10% of all units will be one bedroom
85% will be two bedroom
5% will be three bedroom (specific numbers for each type of housing unit have been provided in Table 3.1.

TABLE 3.1

PROPOSED UNIT TYPES PER PHASE

UNIT TYPES/ PHASE	PHASE I	PHASE II	PHASE III	PHASE IV	PHASE V	PHASE VI
GARDEN APARTMENTS (TOTAL)	37	90	37	37	90	89
STUDIO	0	3	0	0	3	6
ONE BEDROOM	7	23	7	7	23	19
TWO BEDROOM	30	64	30	30	64	64
TOWNHOUSES (TOTAL)	63	10	63	63	10	11
TWO BEDROOM	52	5	52	52	5	6
THREE BEDROOM	11	5	11	11	5	5
TOTAL UNITS (PER PHASE	100	100	100	100	100	100
TOTAL NUMBER OF UNITS PROPOSED	.....					600

SOURCE: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987.

Phased development

As mentioned above, the development is expected to be constructed in 6 phases (of approximately 100 units each) over as many years. This will help to spread the impact of the development on the City over a period of time, and the analysis takes this fact into consideration. While this would give the City more time to adapt to the impacts of the development, it is the cumulative, permanent effect of the development which is the critical factor in the analysis.

Public vs. Private

Another interesting feature of the Kettle Point development is the fact that it is to have a Condominium

Association. The Association is expected to take over a number of tasks, such as garbage disposal, sewage pumping, snow plowing, policing (within the complex) and street lighting, that would traditionally be the responsibility of the City. This would help to reduce a considerable portion of the burden on the City of East Providence. However, there is a possibility that the Association could cease to function in the future and the responsibility of performing the Association's tasks would then fall on the City. The fiscal impact study therefore compares both scenarios in order to assess the impacts of the development and the additional burden on the City in the event that the Association fails.

Methodology and Assumptions

Per Capita Multiplier Method

The Per Capita Multiplier Method is an average costing tool which is used to measure the impact of local population changes on municipal and school district costs and revenues. It is a linear projection of the costs which will be attributed to an incoming development and assumes that the current average operating cost per person and per student are a good indicator of future operating costs accompanying growth.

Application

This method is most applicable in communities where the demand for local services is reflected in the scale and scope of current services i.e. in those situations in which the local instance of excess or deficient service capacity is

minimal. This method is ideally suited to evaluating the fiscal impact of residential development proposals, land use alternatives within a proposed growth development strategy, etc. Given these parameters of application, it was decided that this method would be suited for the evaluation of the fiscal impact of the Kettle Point residential development on the City of East Providence.

Assumptions

The Per Capita Multiplier Method relies on the following assumptions:

(i) In the long run, current average operating costs per capita and per student are the best estimates of future operating costs after growth.

(ii) The current local service levels will continue on the same scale even in the future.

(iii) The current composition of the population incurring costs and the population occasioning future costs will remain similar; so that the above scenario of service delivery will remain unaltered.

(iv) The number of residents and students introduced by the new development varies primarily with the size of the dwelling unit and secondarily with the type of the unit.

(v) The final premise is that the current distribution of expenditures among the various categories of municipal service will remain constant in the short run and will serve as the primary indicator of the way in which

additional expenditure will be subsequently allocated.

Procedures

The steps to be followed using this methodology are as follows:

Step 1 Contact city officials to obtain local budget information and the most recent population projections.

Step 2 Categorize municipal service costs into 8 categories.

Step 3 Calculate total municipal expenditures by summing up the costs of each category.

Step 4 Calculate the total municipal costs attributable to residential land use.

Step 5 Calculate the total anticipated population based upon the proposed new housing type.

Step 6 Calculate the residentially induced costs by multiplying the per capita costs by the anticipated population.

Step 7 Allocate the total costs to each service category.

Step 8 Project total revenues.

Step 9 Calculate the cost-revenue surplus or deficit by comparing total costs incurred and total revenues generated.

Table 3.2 indicates the data requirements and sources utilized in this method.

Advantages

The Per Capita Multiplier Method is one of the most widely used average costing methods for the following

reasons:

(i) Simplicity/Low Cost - This method is relatively easy to implement and yields relatively accurate, long-term fiscal impact projections.

(ii) Operational Utility - This method provides a future scenario of both educational and noneducational costs related to proposed development. In order to do so, it employs information which reflects existing local service levels and projects them into the future. Its value is therefore in its objective appraisal of local fiscal impact generated by the new growth compared to the existing situation.

(iii) Acceptability - This method is the most widely used and accepted fiscal procedure available. The availability of relatively accurate data required for this method, make this a popular method of evaluating fiscal impact.

Disadvantages

(i) Richness of Detail - Probably the greatest disadvantage of this method is the lack of a high level of detail. Although the procedures outlined here tabulate and project municipal service cost by functional category, the method does not provide the level of accuracy of estimates of personnel hiring costs or new capital outlays required .

(ii) Long-term vs. Short-term Impact - This method projects only long-term, average impact costs. It neither reflects the decisions that must take place immediately

TABLE 3.2

PER CAPITA MULTIPLIER METHOD: DATA REQUIREMENTS AND SOURCES

No.	Data Requirements	Source(s)
1	Local published municipal and school district budget	Tax Equalization Tables E.P. Budget Superintendent of schools
2	Municipal and school district expenditures by service category	Tax Equalization Tables E.P. Budget Superintendent of schools
3	Total assessed value of existing non-residential facilities; Total assessed value of all local property Market value of inclusive nonresidential facilities; Local Equalization ratio Municipal and school district real property tax rates	Tax Equalization Tables Tax Assessor
4	Existing population estimates for municipality and school district	U.S. Census, 1980 R.I. Basic Eco. Statistics City of E.P.
5	Demographic multipliers by housing type	Handbook, Chapter 13
6	State and federal government transfers	Tax Equalization tables E.P. Tax Assessor's office

SOURCE: R. BURCHELL AND D. LISTOKIN, 1983.

after the proposal nor does it take into account existing service slack or deficiency. Hence the answers provided concerning actual service responses are not very specific or definitive.

Service Standard Multiplier Method

The Service Standard Method is an average costing tool used to project the impact of population change on local municipal and school district costs and revenues. This method essentially relies on average employment levels and the relationship of annual capital-to-operating expenditures to estimate the future costs induced by a development. This method provides more detail than the Per Capita Multiplier Method. While the latter only provides gross estimates by service category, more detailed future manpower estimates according to each service function are available by the former. The Service Standard Method, because it presents manpower levels by population size and geographic region is further sensitive to both economies of scale and geographic differentials in the quality of public services provided. The Service Standard Method therefore was chosen to supplement the results provided by the Per Capita Multiplier Method.

Application

This method is typically employed when moderately growing second-order cities contemplate a population increment and would like a detailed estimate by service category of the manpower, equipment and capital outlay

requirements of such a population change. It is most useful in communities where the existing service capacity is closely related to existing service demand so that there is neither a considerable excess or deficient capacity. The Service Standard strategy can be readily used by an analyst who is not familiar with the intimate details of local operations and the method does not require special data or information that may be difficult to obtain.

Assumptions

The Service Standard Method of fiscal analysis operates on the following assumptions:

(i) The fundamental assumption is that in the long run, the average existing levels of service for both manpower and capital outlay can be used to assign costs to the future development.

(ii) Service levels for manpower and capital investment vary according to the local population. The analyst must therefore be sensitive to the changes in service levels due to a change in the population size.

(iii) Geographic location affects public service levels.

(iv) Average service levels of the population group relevant population levels and geographic context at the time of the development, are those that should be used to assign service load to the development i.e. current costs per unit base are the most accurate indicators of future expenditure patterns.

Procedures

The step-by-step procedure of the Service Standard approach is summarized in the section below:

Step 1 Determine the population and school age population increase resulting from the proposed development.

Step 2 Project the number of incremental public employees resulting from the proposed growth.

Step 3 Calculate the average operating expenditure per employee, by service category.

Step 4 Project total annual operating costs using the number of employees attributed to growth.

Step 5 Project total annual capital costs.

Step 6 Project total annual public costs.

Step 7 Project total annual public revenues.

Step 8 Calculate the cost-revenue surplus or deficit by comparing projected total revenues to projected total costs.

Table 3.3 indicates the data requirements and sources utilized in this method.

Advantages

(i) Richness of Detail - This method provides a high level of detail, since it not only predicts the financial consequences of population change but also projects specific growth-induced results for each public service category.

(ii) Operational Utility - The information gained from the results of this method, especially the detailed

TABLE 3.3

SERVICE STANDARD METHOD: DATA REQUIREMENTS AND SOURCES

No.	Data Requirements	Source(s)
1	School-age children and household size multipliers for various housing types	Handbook, Chapter 13
2	Existing community and school district size	U.S. Census E.P. Planning Department R.I. Basic Eco. Statistics Local School Department
3	Service standards for different public service functions differentiated by community size and region of the country	Handbook, Chapter 4
4	Muncipal and school district working budgets	City records Local School Department
5	Capital-to-operating expenditure ratios	Handbook, Chapter 4
6	Municipal and school district real property tax rates	Tax Equalization tables
7	Property assessment procedures	E.P. Tax Assessor's office
8	State and federal government transfers	Tax Equalization tables E.P. Tax Assessor's office

SOURCE: R. BURCHELL AND D. LISTOKIN, 1983.

employment requirements and capital investment induced by the development, is useful for public officials anticipating future growth.

(iii) Acceptance - This method has been accepted as a legitimate technique to project the fiscal impacts of growth.

(iv) Simplicity/Low Cost - The method is a straightforward and inexpensive technique to use, considering the high level of detail it offers.

Disadvantages

The Service Standard strategy assumes that the pattern of expenditures in the long run will be similar to the existing patterns of expenditures in cities of a similar size and location. To the extent that the actual local performance varies from the assumed norm, the projection will either underestimate or overestimate actual local expenditures. It is assumed however, that the overall result will be a balanced one, so that average expenditures in comparable communities are an adequate indicator of future costs to a specific community.

ANALYSIS

The following analysis of the proposed development at Kettle Point is presented in 6 sections. First, it discusses the local revenues which have been projected to result from the development of the site. Secondly, it presents the results of the Per Capita Multiplier costing method both as a privately maintained complex and as one that would depend on the city for public services. Thirdly, the analysis addresses the resulting expenses to the City (in terms of increases in employment in the various municipal sectors) through the Service Standard approach. The fourth section analyses the impact of the development on the school system in greater detail. The fifth section discusses the differences and implications of the two methods employed and compares the results of this analysis to those of the Transcontinental Development Corporation. Finally, recommendations to the City are made, based on the analysis .

Projection of Revenues Generated

Table 3.4 reflects revenues which will be generated during the six phases of the development. Upon completion, it is projected that the development will provide gross revenues of approximately $1,915,704. During the first phase of development the gross revenues are expected to be approximately $318,417. This figure increases by approximately $300,000 during each subsequent phase of development. These figures reflect the revenues which are generated solely through property taxes paid to the city,

TABLE 3.4

REVENUES GENERATED BY DEVELOPMENT

1	TOTAL LOCAL ASSESSED REAL PROPERTY VALUE	=	1305672690.00
2	TOTAL LOCAL ASSESSED REAL PROPERTY VALUE (RESIDENTIAL)	=	731947540.00
3	TOTAL LOCAL ASSESSED REAL PROPERTY VALUE (NON-RES)	=	573725150.00
4	LOCAL EQUALIZATION RATIO (RATIO OF ASSESSMENT)	=	92.8%
5	TOTAL LOCAL EQUALIZED REAL PROPERTY VALUE	=	1406974881.47
6	TOTAL LOCAL EQUALIZED REAL PROPERTY VALUE (RESIDENTIAL)	=	788736573.28
7	TOTAL LOCAL EQUALIZED REAL PROPERTY VALUE (NON-RES)	=	618238308.19
8	TOTAL TAXABLE NUMBER OF LAND PARCELS	=	15422.00
9	TOTAL TAXABLE NUMBER OF LAND PARCELS (RESIDENTIAL)	=	13634.00
10	TOTAL TAXABLE NUMBER OF LAND PARCELS (NON-RES)	=	1788.00
11	AVERAGE EQUALIZED REAL PROPERTY VALUE PER PARCEL	=	91231.67
12	AVERAGE EQUALIZED REAL PROPERTY VALUE PER PARCEL (RES)	=	57850.71
13	AVERAGE EQUALIZED REAL PROPERTY VALUE PER PARCEL (NON-RES)	=	345770.87
14	LOCAL EQUALIZATION RATIO (RATIO OF ASSESSMENT)	=	92.8%
15	EFFECTIVE RATE ($ TAXATION PER $1000 OF ASSESSED VALUE)	=	28.01
16	EQUALIZATION RATE = RATIO OF ASSESSMENT X EFFECTIVE RATE	=	25.99

	PHASE I	PHASE II	PHASE III	PHASE IV	PHASE V	PHASE VI
PROP.VALUE	12250000.00	23750000.00	35620000.00	47800000.00	60560000.00	73700000.00
REVENUES	318417.68	617340.40	925880.63	1242478.78	1574153.04	1915704.74

SOURCES: EAST PROVIDENCE, TAX ASSESSOR, MARCH, 1987;
TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987.

which will of course by the cities primary source of income from this project. It should be borne in mind that these figures refer only to the gross revenues generated and may be significantly reduced in response to the demand placed on municipal services upon completion of the development. Costs to the city which are determined through the two methods employed, will be subtracted from this figure to yield the net revenues to the city.

TABLE 3.5

PER CAPITA MULTIPLIER METHOD
POPULATION & STUDENTS GENERATED

PHASE	POPULATION	STUDENTS
PHASE I	243	16
PHASE II	224	15
PHASE III	243	17
PHASE IV	242	16
PHASE V	225	15
PHASE VI	224	14
TOTAL	1401	93

SOURCE: TRANSCONTINENTAL DEVPT. CORP., 1987
R. BURCHELL & D. LISTOKIN, 1983.

Results of the Per Capita Multiplier Method

Total Population/School Age Population Generated

Table 3.5 shows the total population increase which is projected to result from this development. As can be seen, it is expected that approximately 250 new residents will be added to the cities population with each new phase of

construction. The first phase of the project will attract approximately 243 new residents. This figure is expected to increase to approximately 1401 new residents in at the sixth and final phase of the development.

Through this method it has been determined that the total number of new school age children which will be added to the cities school system as a direct result of this project is 93. This number is about 85% of the actual number of school age-population generated, since it is assumed that 15% of the school-age population will attend private schools. It is anticipated that new school children will be added at a rate of approximately 16 per development phase. A detailed analysis of the volumes and capacities of the schools which will be directly impacted from this development is provided later in this section.

Total Annual Expenditures (Municipal and School District) incurred by the development

Existing locally residentially induced per capita costs for each service function were used as a base to project the annual expenditures occasioned by the development. To employ the total per capita costs would overstate the expected costs since this total is generated by both residential as well as non-residential uses.

Table 3.6 shows the steps to be followed in assigning annual costs to residential uses.

(i) In order to isolate the non-residentially induced municipal expenditure is to determine the non-

TABLE 3.6

PER CAPITA COSTS ASSIGNABLE TO RESIDENTIAL USES
EAST PROVIDENCE, 1983/1984

1	TOTAL LOCAL ASSESSED REAL PROPERTY VALUE	=		1305672690.00
2	TOTAL LOCAL ASSESSED REAL PROPERTY VALUE (RESIDENTIAL)	=		731947540.00
3	TOTAL LOCAL ASSESSED REAL PROPERTY VALUE (NON-RES)	=		573725150.00
4	LOCAL EQUALIZATION RATIO (RATIO OF ASSESSMENT)	=		92.8%
5	TOTAL LOCAL EQUALIZED REAL PROPERTY VALUE	=		1406974881.47
6	TOTAL LOCAL EQUALIZED REAL PROPERTY VALUE (RESIDENTIAL)	=		788736573.28
7	TOTAL LOCAL EQUALIZED REAL PROPERTY VALUE (NON-RES)	=		618238308.19
8	TOTAL TAXABLE NUMBER OF LAND PARCELS	=		15422.00
9	TOTAL TAXABLE NUMBER OF LAND PARCELS (RESIDENTIAL)	=		13634.00
10	TOTAL TAXABLE NUMBER OF LAND PARCELS (NON-RES)	=		1788.00
11	AVERAGE EQUALIZED REAL PROPERTY VALUE PER PARCEL	=		91231.67
12	AVERAGE EQUALIZED REAL PROPERTY VALUE PER PARCEL (RES)	=		57850.71
13	AVERAGE EQUALIZED REAL PROPERTY VALUE PER PARCEL (NON-RES)	=		345770.87
14	NON-RESIDENTIAL SHARE OF TOTAL LOCAL REAL PROPERTY VALUE	= (7)/(5)	=	0.4394
15	RATIO OF NON-RESIDENTIAL TO AVERAGE PARCEL VALUE	= (13/11)	=	3.7900
16	REFINEMENT COEFFICIENT (SEE APPENDIX B)		=	1.2750
17	TOTAL LOCAL EXISTING MUNICIPAL EXPENDITURES (1983/84)		=	20211525.00
18	TOTAL EXISTING MUNICIPAL EXP. ATTRIBUTABLE TO NON-RES USES	= (17)x(14)x(16)	=	11323451.80
19	TOTAL EXISTING MUNICIPAL EXP. ATTRIBUTABLE TO RESIDENTIAL USES	= (17)-(18)	=	8888073.20
20	TOTAL EXISTING POPULATION (1983/84)	=		50980
21	ANNUAL PER CAPITA COSTS FOR MUNICIPAL SERVICES TO RESIDENTIAL USES	= (19)/(20)	=	174.34

SOURCE: EAST PROVIDENCE, TAX ASSESSOR, MARCH, 1987.

residential share of total local real property value. In this case non-residential uses comprise 0.44 (44%) of the value of all taxable property.

(ii) The ratio between the average value of a local non-residential property and the average value of all local property was found to be 3.79. Empirical evidence has shown that an insufficient share of costs is being assigned via the simple proportion of aggregate real property value. The vehicle which increases this is the refinement coefficient, 1.275 in this case.

(iii) Thus local non-residential uses would be assigned (0.44 x 1.275) of total municipal services or 0.56 of total outlays.

(iv) As total annual municipal service costs were found to be $20,211,525, the share of costs assigned to the non-residential sector is $11,323,451.80.

(v) The remaining portion, $8,888,073.20 is therefore to the residential sector.

(vi) The resulting annual municipal cost per capita assignable to residential uses is $ 174.34.

(vii) The average outlay per pupil ($3409.70) is estimated by dividing the total school district expenditures ($22,227,826) by the total public school children (6519).

The future public costs to be associated with the development have been tabulated both, as the development has been proposed (a privately managed complex) and, as if the

development were to depend on the City for public services.

Costs incurred by the development (privately managed)

Tables 3.7A through 3.7F indicate the cumulative costs assignable to each municipal functional area as well as the school district sector, as incurred by the development through each of the six phases.

In this scenario, the costs attributable to sewers, waste removal and street lighting have not been included as a part of the total costs incurred by the development. As can be seen, the annual expenditure impact of the 600 unit residential development increases from a total of about $88,349 in the first phase (100 units), to $511,939 in the sixth and final phase (600 units). The categories of municipal service most affected by the this increase appear to be:

(i) Fire - The entire development would depend on the City of East Providence to provide fire fighting services. The costs accruing to the fire department form the highest portion (27%) of the total municipal costs occasioned by the development. The annual expenditure ranges from $8940 in the first and increase thereon to about $51,545 in the sixth and final phase. It must be kept in mind however, that these costs are only annual operating brought about by the development. This analysis does not consider capital outlays, such as the addition of a fire truck, that may be needed due to an increased demand on the existing services. This

deficiency is corrected in the Service Standard Method, which calculates the capital costs occasioned by the development.

(ii) Police - Although it has been determined that the the Condominium Association would provide private security guards to guard the complex, the responsibility of the City's police force will not be reduced in terms of offering basic services such as, ticketing and arrests that are offered to other less privately maintained residential areas. It was due to this reason that the cost assignable to the police sector was not subtracted from the total expenditure attributable to the development. The annual cost to the police department formed about 26% of the total annual municipal expenses. The annual costs accruing to the police sector, range from $8629 in the first phase to about $49,751 in the sixth phase.

(iii) Other - General Government, Debt Service, Recreation & Libraries and Health & Welfare are other functional areas of municipal expenditure that would be impacted, to a lesser extent however, by the development.

(iv) Schools - Educational costs form about 62% of the total costs incurred as a result of the development. Here total annual school district expenditures range from $54,555 in the first phase to about 317,102 in the sixth and final phase. A more detailed study of the impact of the development on the school system is

TABLE 3.7A

FISCAL IMPACT ANALYSIS: PER CAPITA MULTIPLIER METHOD (PHASE I)

ANTICIPATED POPULATION	GOVERNMENT FUNCTIONS	OPERATING EXPENSE	OP. EXPENSE /CAPITA	TOTAL ANNUAL OP. COSTS BY FUNCTION
RESIDENTS 243	MUNICIPAL			
	GENERAL GOVERNMENT			
STUDENTS 16	General Control	579640.60	11.37	2762.90
	Financial Admin.	312455.00	6.13	1489.34
POPULATION 5098O	PUBLIC SAFETY			
	Police	1810357.12	35.51	8629.20
	Fire	1875624.96	36.79	8940.31
	Inspection	83988.52	1.65	400.34
	PUBLIC WORKS			
	Highways	674565.32	13.23	3215.37
	Sewers	1195927.04	23.46	5700.48
	Waste Removal	363211.64	7.12	1731.28
	Street Lighting	155706.76	3.05	742.19
	General	162470.88	3.19	774.43
	HEALTH & WELFARE			
	Health	39468.00	0.77	188.13
	Welfare	339584.08	6.66	1618.65
	INSURANCE & BENEFITS	26441.80	0.52	126.04
	RECREATION & CULTURE			
	Parks & Recreation	407344.52	7.99	1941.64
	Libraries	273291.04	5.36	1302.66
	DEBT SERVICE	504537.00	9.90	2404.91
	TOTAL MUNICIPAL EXPENDITURES			
	* (INCLUDING SANITATION)		172.71	41967.86
	* (NOT INCLUDING SANITATION)		139.07	33793.92
	SCHOOL DISTRICT			
	Operating		3242.75	51883.97
	Debt Service		166.95	2671.21
	TOTAL SCHOOL DIST. EXPENDITURES		3409.70	54555.18
	TOTAL MUNICIPAL & SCHOOL DISTRICT EXPENDITURES			
	* (INCLUDING SANITATION)			96523.04
	* (NOT INCLUDING SANITATION)			88349.10

TABLE 3.7B

FISCAL IMPACT ANALYSIS: PER CAPITA MULTIPLIER METHOD (PHASE I-II)

ANTICIPATED POPULATION	GOVERNMENT FUNCTIONS	OPERATING EXPENSE	OP. EXPENSE /CAPITA	TOTAL ANNUAL OP. COSTS BY FUNCTION
RESIDENTS 467	MUNICIPAL			
	GENERAL GOVERNMENT			
STUDENTS 31	General Control	579640.60	11.37	5309.77
	Financial Admin.	312455.00	6.13	2862.23
POPULATION 50980	PUBLIC SAFETY			
	Police	1810357.12	35.51	16583.70
	Fire	1875624.96	36.79	17181.58
	Inspection	83988.52	1.65	769.37
	PUBLIC WORKS			
	Highways	674565.32	13.23	6179.33
	Sewers	1195927.04	23.46	10955.24
	Waste Removal	363211.64	7.12	3327.18
	Street Lighting	155706.76	3.05	1426.34
	General	162470.88	3.19	1488.31
	HEALTH & WELFARE			
	Health	39468.00	0.77	361.54
	Welfare	339584.08	6.66	3110.74
	INSURANCE & BENEFITS	26441.80	0.52	242.22
	RECREATION & CULTURE			
	Parks & Recreation	407344.52	7.99	3731.46
	Libraries	273291.04	5.36	2503.47
	DEBT SERVICE	504537.00	9.90	4621.79
	TOTAL MUNICIPAL EXPENDITURES			
	* (INCLUDING SANITATION)		172.71	80654.27
	* (NOT INCLUDING SANITATION)		139.07	64945.51
	SCHOOL DISTRICT			
	Operating		3242.75	100525.20
	Debt Service		166.95	5175.46
	TOTAL SCHOOL DIST. EXPENDITURES		3409.70	105700.66
	TOTAL MUNICIPAL & SCHOOL DISTRICT EXPENDITURES			
	* (INCLUDING SANITATION)			186354.93
	* (NOT INCLUDING SANITATION)			170646.17

TABLE 3.7C

FISCAL IMPACT ANALYSIS: PER CAPITA MULTIPLIER METHOD (PHASE I-III)

ANTICIPATED POPULATION	GOVERNMENT FUNCTIONS	OPERATING EXPENSE	OP. EXPENSE /CAPITA	TOTAL ANNUAL OP. COSTS BY FUNCTION
RESIDENTS	MUNICIPAL			
710				
	GENERAL GOVERNMENT			
STUDENTS	General Control	579640.60	11.37	8072.67
48	Financial Admin.	312455.00	6.13	4351.57
POPULATION	PUBLIC SAFETY			
50980	Police	1810357.12	35.51	25212.90
	Fire	1875624.96	36.79	26121.89
	Inspection	83988.52	1.65	1169.71
	PUBLIC WORKS			
	Highways	674565.32	13.23	9394.69
	Sewers	1195927.04	23.46	16655.71
	Waste Removal	363211.64	7.12	5058.46
	Street Lighting	155706.76	3.05	2168.53
	General	162470.88	3.19	2262.74
	HEALTH & WELFARE			
	Health	39468.00	0.77	549.67
	Welfare	339584.08	6.66	4729.40
	INSURANCE & BENEFITS	26441.80	0.52	368.26
	RECREATION & CULTURE			
	Parks & Recreation	407344.52	7.99	5673.10
	Libraries	273291.04	5.36	3806.13
	DEBT SERVICE	504537.00	9.90	7026.70
	TOTAL MUNICIPAL EXPENDITURES			
	$ (INCLUDING SANITATION)		172.71	122622.13
	$ (NOT INCLUDING SANITATION)		139.07	98739.42
	SCHOOL DISTRICT			
	Operating		3242.75	155651.92
	Debt Service		166.95	8013.62
	TOTAL SCHOOL DIST. EXPENDITURES		3409.70	163665.54
	TOTAL MUNICIPAL & SCHOOL DISTRICT EXPENDITURES			
	$ (INCLUDING SANITATION)			286287.67
	$ (NOT INCLUDING SANITATION)			262404.96

TABLE 3.70

FISCAL IMPACT ANALYSIS: PER CAPITA MULTIPLIER METHOD (PHASE I-IV)

ANTICIPATED POPULATION	GOVERNMENT FUNCTIONS	OPERATING EXPENSE	OP. EXPENSE /CAPITA	TOTAL ANNUAL OP. COSTS BY FUNCTION
RESIDENTS 952	MUNICIPAL			
	GENERAL GOVERNMENT			
STUDENTS 64	General Control	579640.60	11.37	10824.20
	Financial Admin.	312455.00	6.13	5834.78
POPULATION 50980	PUBLIC SAFETY			
	Police	1810357.12	35.51	33806.59
	Fire	1875624.96	36.79	35025.40
	Inspection	83988.52	1.65	1568.40
	PUBLIC WORKS			
	Highways	674565.32	13.23	12596.83
	Sewers	1195927.04	23.46	22332.73
	Waste Removal	363211.64	7.12	6782.61
	Street Lighting	155706.76	3.05	2907.67
	General	162470.88	3.19	3033.98
	HEALTH & WELFARE			
	Health	39468.00	0.77	737.03
	Welfare	339584.08	6.66	6341.39
	INSURANCE & BENEFITS	26441.80	0.52	493.77
	RECREATION & CULTURE			
	Parks & Recreation	407344.52	7.99	7606.75
	Libraries	273291.04	5.36	5103.43
	DEBT SERVICE	504537.00	9.90	9421.72
	TOTAL MUNICIPAL EXPENDITURES			
	@ (INCLUDING SANITATION)		172.71	164417.28
	@ (NOT INCLUDING SANITATION)		139.07	132394.27
	SCHOOL DISTRICT			
	Operating		3242.75	207535.89
	Debt Service		166.95	10684.83
	TOTAL SCHOOL DIST. EXPENDITURES		3409.70	218220.72
	TOTAL MUNICIPAL & SCHOOL DISTRICT EXPENDITURES			
	@ (INCLUDING SANITATION)			382638.00
	@ (NOT INCLUDING SANITATION)			350614.99

TABLE 3.7E

FISCAL IMPACT ANALYSIS: PER CAPITA MULTIPLIER METHOD (PHASE I-V)

ANTICIPATED POPULATION	GOVERNMENT FUNCTIONS	OPERATING EXPENSE	OP. EXPENSE /CAPITA	TOTAL ANNUAL OP. COSTS BY FUNCTION
RESIDENTS 1177	MUNICIPAL			
	GENERAL GOVERNMENT			
STUDENTS 79	General Control	579640.60	11.37	13382.44
	Financial Admin.	312455.00	6.13	7213.80
POPULATION 50980	PUBLIC SAFETY			
	Police	1810357.12	35.51	41796.59
	Fire	1875624.96	36.79	43303.46
	Inspection	83988.52	1.65	1939.08
	PUBLIC WORKS			
	Highways	674565.32	13.23	15574.02
	Sewers	1195927.04	23.46	27610.95
	Waste Removal	363211.64	7.12	8385.64
	Street Lighting	155706.76	3.05	3594.88
	General	162470.88	3.19	3751.04
	HEALTH & WELFARE			
	Health	39468.00	0.77	911.22
	Welfare	339584.08	6.66	7840.14
	INSURANCE & BENEFITS	26441.80	0.52	610.47
	RECREATION & CULTURE			
	Parks & Recreation	407344.52	7.99	9404.56
	Libraries	273291.04	5.36	6309.60
	DEBT SERVICE	504537.00	9.90	11648.49
	TOTAL MUNICIPAL EXPENDITURES			
	* (INCLUDING SANITATION)		172.71	203276.40
	* (NOT INCLUDING SANITATION)		139.07	163684.93
	SCHOOL DISTRICT			
	Operating		3242.75	256177.11
	Debt Service		166.95	13189.09
	TOTAL SCHOOL DIST. EXPENDITURES		3409.70	269366.20
	TOTAL MUNICIPAL & SCHOOL DISTRICT EXPENDITURES			
	* (INCLUDING SANITATION)			472642.60
	* (NOT INCLUDING SANITATION)			433051.13

TABLE 3.7F

FISCAL IMPACT ANALYSIS: PER CAPITA MULTIPLIER METHOD (PHASE I-VI)

ANTICIPATED POPULATION	GOVERNMENT FUNCTIONS	OPERATING EXPENSE	OP. EXPENSE /CAPITA	TOTAL ANNUAL OP. COSTS BY FUNCTION
RESIDENTS 1401	MUNICIPAL			
	GENERAL GOVERNMENT			
STUDENTS 93	General Control	579640.60	11.37	15929.32
	Financial Admin.	312455.00	6.13	8586.69
POPULATION 50980	PUBLIC SAFETY			
	Police	1810357.12	35.51	49751.09
	Fire	1875624.96	36.79	51544.73
	Inspection	83988.52	1.65	2308.12
	PUBLIC WORKS			
	Highways	674565.32	13.23	18537.98
	Sewers	1195927.04	23.46	32865.71
	Waste Removal	363211.64	7.12	9981.55
	Street Lighting	155706.76	3.05	4279.03
	General	162470.88	3.19	4464.92
	HEALTH & WELFARE			
	Health	39468.00	0.77	1084.63
	Welfare	339584.08	6.66	9332.23
	INSURANCE & BENEFITS	26441.80	0.52	726.66
	RECREATION & CULTURE			
	Parks & Recreation	407344.52	7.99	11194.38
	Libraries	273291.04	5.36	7510.41
	DEBT SERVICE	504537.00	9.90	13865.37
	TOTAL MUNICIPAL EXPENDITURES			
	* (INCLUDING SANITATION)		172.71	241962.82
	* (NOT INCLUDING SANITATION)		139.07	194836.53
	SCHOOL DISTRICT			
	Operating		3242.75	301575.59
	Debt Service		166.95	15526.39
	TOTAL SCHOOL DIST. EXPENDITURES		3409.70	317101.98
	TOTAL MUNICIPAL & SCHOOL DISTRICT EXPENDITURES			
	* (INCLUDING SANITATION)			559064.80
	* (NOT INCLUDING SANITATION)			511938.51

SOURCE: EAST PROVIDENCE, CITY BUDGET, 1985.

conducted later on in this chapter.

Costs incurred by the development (depending on public services)

An analysis of the public costs accruing to the City in case the Condominium Association failed to function in future years was conducted. Here, the costs assignable to the functions that would be the responsibility of the Association such as, sewers, garbage collection and street lighting, were added to the total costs calculated in the above section.

As one would imagine, the total costs incurred, assuming that the development would depend on the City for all public services, would be much greater than the public costs if the development to be a privately maintained one. The cost impact analysis (Tables 3.7A to 3.7F) shows that the total public costs assignable to the City would increase by about 9.25%, with the actual annual cost increases ranging from $8174 in the first phase to about $48,126 in the final phase. The actual annual public expenditures range from $96,523 in the first phase to about $559,065 in the sixth and final phase.

Here, the categories of municipal expenditure that would be most affected by the change in the scenario would be:

(i) Sewers - This category forms about 14% of the total annual municipal costs assignable to the development. The annual cost ranges from $5,701 in the first phase to about $32,865 in the final phase. This cost estimate does not consider additional funds that may be

required in the form of capital outlay, such as the addition of sewer pumps.

(ii) Waste Removal - This sector comprises about 5% of the total municipal costs assignable to the development. The expenses range from $ 1,731 in the first phase to about 9,982 in the sixth phase.

(iii) Street Lighting - This sector barely comprises 0.10% of the total expenses. However it must be mentioned that this figure only indicates the annual operating expenses. The capital outlay required to put in new street lights in the complex would run much higher.

Cost-Revenue Analysis

Tables 3.11A and 3.11B indicate the net fiscal impact on the City as computed by the Per Capita Multiplier Method. The net impact has been calculated using the following two scenarios:

(i) Privately managed complex - The analysis (Table 4.8A) shows a net gain to the community ranging from $230,068 in the first phase to 1,403,766 in the final phase.

(ii) Depending on public services - As indicated in Table 4.8B, the development will produce a revenue surplus ranging from $221,894 in the first phase to about $1,356,639 in the final phase.

It must be mentioned however, that the Per Capita Multiplier Method of fiscal impact analysis does not consider capital expenditure induced by the development. Also, the fact that this technique is an average costing one, may mean

that the public costs assignable to the development may be underestimated to some extent.

Results of the Service Standard Method

Total Population/School Age Population Generated

Table 3.8 indicates the total population generated by the development in each phase. Due to the non-availability of specific multipliers for each individual housing size (in this particular method), the population generated by the development was determined by using aggregate multipliers for the housing type.

TABLE 3.8

FISCAL IMPACT ANALYSIS: SERVICE STANDARD METHOD
POPULATION GENERATED BY DEVELOPMENT

	GARDEN APARTMENTS			TOWNHOUSES			TOTAL		
	# OF UNITS	HOUSEHOLD	SCHOOL	# OF UNITS	HOUSEHOLD	SCHOOL	# OF UNITS	POPULATION	STUDENTS
DEOMGRAPHIC MULTIPLIER	-	2.632	0.358	-	3.027	0.838	-	-	-
		POPULATION GENERATED			POPULATION GENERATED				
		RESIDENTS	STUDENTS		RESIDENTS	STUDENTS			
PHASE I	37	97	11	63	191	45	100	288	56
PHASE I-II	127	334	39	73	221	52	200	555	91
PHASE I-III	164	432	50	136	412	97	300	843	147
PHASE I-IV	201	529	61	199	602	142	400	1131	203
PHASE I-V	291	766	89	209	633	149	500	1399	237
PHASE I-VI	380	1000	116	220	666	157	600	1666	272

SOURCES: TRANSCONTINENTAL DEVELOPMENT CORPORATION, MARCH, 1987;

The residents generated by the development increase from 288 in the first phase to about 1666 in the final phase of the development. The school-age population generated by the

development is significantly higher; 56 in the first phase and 272 in the final phase, than that computed by the former (Per Capita Multiplier) method. This number as mentioned before, is 85% of the total school-age population generated by the development.

Projection of Public Employees Resulting from Growth

To estimate the future number of public employees by service category, service ratios for communities of size 50,000-99,999 people in the North East region were utilized.

By using the appropriate ratios, the additional employees required to accomodate the development in all six phases were projected (Table 3.10A to 3.10F). For example, the estimated increase in employees in the Police Department in the first phase is 0.71, while in the final phase, 4.08 employees would have to be added in order to maintain a constant level of service. The school department shows the highest increase, from 4.76 employees in the first phase to 23.12 employees in the final phase.

Calculate Average Operating Expenses Per Employee

In this step, the average operating expense per employee is computed by dividing the operating cost per service category by the existing employees in that particular category. Table 3.9 indicates the average operating expenses in each service category.

Total Annual Expenditures (Municipal and School District) incurred by the development

By using the data calculated in the previous two steps,

TABLE 3.9

FISCAL IMPACT ANALYSIS: SERVICE STANDARD METHOD
TOTAL OPERATING COSTS PER EMPLOYEE BY SERVICE FUNCTION

PUBLIC SERVICE FUNCTIONS	TOTAL OPERATING COST	TOTAL # EMPLOYEES	AVERAGE OPERATING COST/EMPLOYEE
MUNICIPAL			
GENERAL GOVERNMENT			
General Control	802524	31	25887.87
Financial Administration	1564301	25	62572.04
PUBLIC SAFETY			
Police	4658681	122	38185.91
Fire	4815446	112	42995.05
PUBLIC WORKS			
Highways	3066598	37	82881.03
Sewerage	3465521	30	115517.37
Sanitation	950000		
Water Supply	2644463	25	105778.52
RECREATION & CULTURE			
Parks & Recreation	1075575	22	48889.77
Libraries	675064	22	30684.73
SCHOOL DISTRICT	25238301	605	41716.20

SOURCE: EAST PROVIDENCE, CITY BUDGET, 1985.

the annual operating outlays by service category have been determined (Table 3.10A to 3.10F).

The Service Standard Method uses median annual capital-to-operating expenditure ratios by community size and region. In this case the ratios corresponding to a community similar to East Providence (Northeast communities of a population of 50,000 -99,999) were used. Table 3.10A indicates the capital-to-operating ratios for each service category. For example, an operating cost of $26,944 in the Police Department, in the first phase, indicates a capital expenditure of $539 in the same phase.

Again, as in the first method, future public costs to be associated with the development have been tabulated both, as the development has been proposed (a privately managed complex) and, as if the development were to depend on the City for public services.

Costs incurred by the development (privately managed)

Here, the total annual municipal costs computed do not include the categories of sewage and sanitation. Here again, the categories of public service that bear the greatest burden are (Table 3.10A to 3.10F):

(i) Fire - The Fire Department has the largest share of the total expenditures assignable to the development, about 23% of the total annual municipal expenses. The yearly expenditure ranges from $29,024 in the first phase to about $167,899 in th final phase.

(ii) Police - This category forms 21% of the total municipal

TABLE 3.10A

FISCAL IMPACT ANALYSIS: SERVICE STANDARD METHOD (PHASE I)

ANTICIPATED POPULATION	GOVERNMENT FUNCTIONS	MANPOWER RATIOS /1000 POP. (50,000-99,999)	ESTIMATED FUTURE #EMPLOYEES	OP. EXPENSE /FUTURE EMP.	TOTAL ANNUAL OP. COSTS BY FUNCTION	CAPITAL TO OP. RATIOS (50,000-99,999)	TOT. ANNUAL CAP. COSTS BY FUNCTION	TOTAL ANNUAL PUB. COSTS (OP + CAP)
RESIDENTS 288	MUNICIPAL							
	GENERAL GOVERNMENT							
STUDENTS	General Control	0.57	0.16	25887.87	4249.75	0.001	4.25	4254.00
56	Financial Admin.	0.49	0.14	62572.04	8830.17	0.001	8.83	8839.00
EXISTING	PUBLIC SAFETY							
POP.	Police	2.45	0.71	38185.91	26943.98	0.020	538.88	27482.86
51686	Fire	2.33	0.67	42995.05	28851.40	0.006	173.11	29024.51
EXISTING	PUBLIC WORKS							
SCHOOL	Highways	0.95	0.27	82881.03	22676.25	0.234	5306.24	27982.49
ENROLL.	Sewerage	0.39	0.11	115517.37	12974.91	0.898	11651.47	24626.38
6519	Sanitation	0.75	0.22		0.00	0.000	0.00	0.00
	Water Supply	0.57	0.16	105778.52	17364.60	0.115	1996.93	19361.53
	RECREATION & CULTURE							
	Parks & Recreation	0.59	0.17	48889.77	8307.35	0.094	780.89	9088.24
	Libraries	0.39	0.11	30684.73	3446.51	0.000	0.00	3446.51
	TOTAL MUNICIPAL EXPENDITURES							
	* (INCLUDING SANITATION)				133644.92		20460.60	154105.52
	* (NOT INCLUDING SANITATION)				120670.01		8809.13	129479.14
	SCHOOL DISTRICT (Enrollment >3000 students)	85.00	4.76	41716.20	198569.11	0.016	3177.11	201746.22
	TOTAL MUNICIPAL & SCHOOL DISTRICT EXPENDITURES							
	* (INCLUDING SANITATION)				332214.03		23637.71	355851.73
	* (NOT INCLUDING SANITATION)				319239.12		11986.24	331225.35

SOURCE: EAST PROVIDENCE, CITY BUDGET, 1985;
R. BURCHELL & D. LISTOKIN, 1983.

TABLE 3.10B

FISCAL IMPACT ANALYSIS: SERVICE STANDARD METHOD (PHASE I-II)

ANTICIPATED POPULATION	GOVERNMENT FUNCTIONS	MANPOWER RATIOS /1000 POP. (50,000-99,999)	ESTIMATED FUTURE #EMPLOYEES	OP. EXPENSE /FUTURE EMP.	TOTAL ANNUAL OP. COSTS BY FUNCTION	CAPITAL TO OP. RATIOS (50,000-99,999)	TOT. ANNUAL CAP. COSTS BY FUNCTION	TOTAL ANNUAL PUB. COSTS (OP + CAP)
RESIDENTS 555	MUNICIPAL							
	GENERAL GOVERNMENT							
STUDENTS 91	General Control	0.57	0.32	25887.87	8189.63	0.001	8.19	8197.82
	Financial Admin.	0.49	0.27	62572.04	17016.47	0.001	17.02	17033.48
EXISTING POP. 51686	PUBLIC SAFETY							
	Police	2.45	1.36	38185.91	51923.29	0.020	1038.47	52961.76
	Fire	2.33	1.29	42995.05	55599.05	0.006	333.59	55932.64
EXISTING SCHOOL ENROLL. 6519	PUBLIC WORKS							
	Highways	0.95	0.53	82881.03	43699.02	0.234	10225.57	53924.59
	Sewerage	0.39	0.22	115517.37	25003.73	0.898	22453.35	47457.09
	Sanitation	0.75	0.42		0.00	0.000	0.00	0.00
	Water Supply	0.57	0.32	105778.52	33463.03	0.115	3848.25	37311.28
	RECREATION & CULTURE							
	Parks & Recreation	0.59	0.33	48889.77	16008.96	0.094	1504.84	17513.80
	Libraries	0.39	0.22	30684.73	6641.71	0.000	0.00	6641.71
	TOTAL MUNICIPAL EXPENDITURES							
	* (INCLUDING SANITATION)				257544.89		39429.28	296974.17
	* (NOT INCLUDING SANITATION)				232541.16		16975.93	249517.09
	SCHOOL DISTRICT (Enrollment >3000 students)	85.00	7.74	41716.20	322674.81	0.016	5162.80	327837.60
	TOTAL MUNICIPAL & SCHOOL DISTRICT EXPENDITURES							
	* (INCLUDING SANITATION)				580219.70		44592.08	624811.78
	* (NOT INCLUDING SANITATION)				555215.96		22138.73	577354.69

SOURCE: EAST PROVIDENCE, CITY BUDGET, 1985;
R. BURCHELL & D. LISTOKIN, 1983.

TABLE 3.10C

FISCAL IMPACT ANALYSIS: SERVICE STANDARD METHOD (PHASE I-III)

ANTICIPATED POPULATION	GOVERNMENT FUNCTIONS	MANPOWER RATIOS /1000 POP. (50,000-99,999)	ESTIMATED FUTURE #EMPLOYEES	OP. EXPENSE /FUTURE EMP.	TOTAL ANNUAL OP. COSTS BY FUNCTION	CAPITAL TO OP. RATIOS (50,000-99,999)	TOT. ANNUAL CAP. COSTS BY FUNCTION	TOTAL ANNUAL PUB. COSTS (OP + CAP)
RESIDENTS 843	MUNICIPAL							
	GENERAL GOVERNMENT							
STUDENTS 147	General Control	0.57	0.48	25887.87	12439.38	0.001	12.44	12451.82
	Financial Admin.	0.49	0.41	62572.04	25846.63	0.001	25.85	25872.48
EXISTING POP. 51686	PUBLIC SAFETY							
	Police	2.45	2.07	38185.91	78867.27	0.020	1577.35	80444.61
	Fire	2.33	1.96	42995.05	84450.45	0.006	506.70	84957.15
EXISTING SCHOOL ENROLL. 6519	PUBLIC WORKS							
	Highways	0.95	0.80	82881.03	66375.27	0.234	15531.81	81907.09
	Sewerage	0.39	0.33	115517.37	37978.65	0.898	34104.82	72083.47
	Sanitation	0.75	0.63		0.00	0.000	0.00	0.00
	Water Supply	0.57	0.48	105778.52	50827.64	0.115	5845.18	56672.81
	RECREATION & CULTURE							
	Parks & Recreation	0.59	0.50	48889.77	24316.30	0.094	2285.73	26602.04
	Libraries	0.39	0.33	30684.73	10088.22	0.000	0.00	10088.22
	TOTAL MUNICIPAL EXPENDITURES							
	* (INCLUDING SANITATION)				391189.81		59889.88	451079.69
	* (NOT INCLUDING SANITATION)				353211.16		25785.06	378996.22
	SCHOOL DISTRICT (Enrollment >3000 students)	85.00	12.50	41716.20	521243.92	0.016	8339.90	529583.82
	TOTAL MUNICIPAL & SCHOOL DISTRICT EXPENDITURES							
	* (INCLUDING SANITATION)				912433.73		68229.79	980663.51
	* (NOT INCLUDING SANITATION)				874455.08		34124.96	908580.04

SOURCE: EAST PROVIDENCE, CITY BUDGET, 1985;
R. BURCHELL & D. LISTOKIN, 1983.

TABLE 3.10D

FISCAL IMPACT ANALYSIS: SERVICE STANDARD METHOD (PHASE I-IV)

ANTICIPATED POPULATION	GOVERNMENT FUNCTIONS	MANPOWER RATIOS /1000 POP. (50,000-99,999)	ESTIMATED FUTURE #EMPLOYEES	OP. EXPENSE /FUTURE EMP.	TOTAL ANNUAL OP. COSTS BY FUNCTION	CAPITAL TO OP. RATIOS (50,000-99,999)	TOT. ANNUAL CAP. COSTS BY FUNCTION	TOTAL ANNUAL PUB. COSTS (OP + CAP)
RESIDENTS 1131	MUNICIPAL							
	GENERAL GOVERNMENT							
STUDENTS 203	General Control	0.57	0.64	25887.87	16689.13	0.001	16.69	16705.82
	Financial Admin.	0.49	0.55	62572.04	34676.80	0.001	34.68	34711.48
EXISTING POP. 51686	PUBLIC SAFETY							
	Police	2.45	2.77	38185.91	105811.25	0.020	2116.22	107927.47
	Fire	2.33	2.64	42995.05	113301.85	0.006	679.81	113981.66
EXISTING SCHOOL ENROLL. 6519	PUBLIC WORKS							
	Highways	0.95	1.07	82881.03	89051.52	0.234	20838.06	109889.58
	Sewerage	0.39	0.44	115517.37	50953.56	0.898	45756.29	96709.85
	Sanitation	0.75	0.85		0.00	0.000	0.00	0.00
	Water Supply	0.57	0.64	105778.52	68192.24	0.115	7842.11	76034.35
	RECREATION & CULTURE							
	Parks & Recreation	0.59	0.67	48889.77	32623.65	0.094	3066.62	35690.28
	Libraries	0.39	0.44	30684.73	13534.73	0.000	0.00	13534.73
	TOTAL MUNICIPAL EXPENDITURES							
	* (INCLUDING SANITATION)				524834.73		80350.48	605185.21
	* (NOT INCLUDING SANITATION)				473881.17		34594.19	508475.36
	SCHOOL DISTRICT (Enrollment >3000 students)	85.00	17.26	41716.20	719813.03	0.016	11517.01	731330.04
	TOTAL MUNICIPAL & SCHOOL DISTRICT EXPENDITURES							
	* (INCLUDING SANITATION)				1244647.76		91867.49	1336515.25
	* (NOT INCLUDING SANITATION)				1193694.20		46111.20	1239805.40

SOURCE: EAST PROVIDENCE, CITY BUDGET, 1985;
R. BURCHELL & D. LISTOKIN, 1983.

TABLE 3.10E

FISCAL IMPACT ANALYSIS: SERVICE STANDARD METHOD (PHASE I-V)

ANTICIPATED POPULATION	GOVERNMENT FUNCTIONS	MANPOWER RATIOS /1000 POP. (50,000-99,999)	ESTIMATED FUTURE #EMPLOYEES	OP. EXPENSE /FUTURE EMP.	TOTAL ANNUAL OP. COSTS BY FUNCTION	CAPITAL TO OP. RATIOS (50,000-99,999)	TOT. ANNUAL CAP. COSTS BY FUNCTION	TOTAL ANNUAL PUB. COSTS (OP + CAP)
RESIDENTS 1399	MUNICIPAL							
	GENERAL GOVERNMENT							
STUDENTS 237	General Control	0.57	0.80	25887.87	20643.76	0.001	20.64	20664.41
	Financial Admin.	0.49	0.69	62572.04	42893.76	0.001	42.89	42936.65
EXISTING POP. 51686	PUBLIC SAFETY							
	Police	2.45	3.43	38185.91	130884.12	0.020	2617.68	133501.80
	Fire	2.33	3.26	42995.05	140149.67	0.006	840.90	140990.57
EXISTING SCHOOL ENROLL. 6519	PUBLIC WORKS							
	Highways	0.95	1.33	82881.03	110153.03	0.234	25775.81	135928.84
	Sewerage	0.39	0.55	115517.37	63027.43	0.898	56598.63	119626.07
	Sanitation	0.75	1.05		0.00	0.000	0.00	0.00
	Water Supply	0.57	0.80	105778.52	84350.97	0.115	9700.36	94051.33
	RECREATION & CULTURE							
	Parks & Recreation	0.59	0.83	48889.77	40354.11	0.094	3793.29	44147.39
	Libraries	0.39	0.55	30684.73	16741.90	0.000	0.00	16741.90
	TOTAL MUNICIPAL EXPENDITURES							
	* (INCLUDING SANITATION)				649198.74		99390.21	748588.95
	* (NOT INCLUDING SANITATION)				586171.31		42791.57	628962.89
	SCHOOL DISTRICT (Enrollment >3000 students)	85.00	20.15	41716.20	840372.85	0.016	13445.97	853818.81
	TOTAL MUNICIPAL & SCHOOL DISTRICT EXPENDITURES							
	* (INCLUDING SANITATION)				1489571.59		112836.17	1602407.77
	* (NOT INCLUDING SANITATION)				1426544.16		56237.54	1482781.70

SOURCE: EAST PROVIDENCE, CITY BUDGET, 1985;
R. BURCHELL & D. LISTOKIN, 1983.

TABLE 3.10F

FISCAL IMPACT ANALYSIS: SERVICE STANDARD METHOD (PHASE I-VI)

ANTICIPATED POPULATION	GOVERNMENT FUNCTIONS	MANPOWER RATIOS /1000 POP. (50,000-99,999)	ESTIMATED FUTURE #EMPLOYEES	OP. EXPENSE /FUTURE EMP.	TOTAL ANNUAL OP. COSTS BY FUNCTION	CAPITAL TO OP. RATIOS (50,000-99,999)	TOT. ANNUAL CAP. COSTS BY FUNCTION	TOTAL ANNUAL PUB. COSTS (OP + CAP)
RESIDENTS 1666	MUNICIPAL							
	GENERAL GOVERNMENT							
STUDENTS 272	General Control	0.57	0.95	25887.87	24583.64	0.001	24.58	24608.22
	Financial Admin.	0.49	0.82	62572.04	51080.06	0.001	51.08	51131.14
EXISTING POP. 51686	PUBLIC SAFETY							
	Police	2.45	4.08	38185.91	155863.43	0.020	3117.27	158980.70
	Fire	2.33	3.88	42995.05	166897.33	0.006	1001.38	167898.71
EXISTING SCHOOL ENROLL. 6519	PUBLIC WORKS							
	Highways	0.95	1.58	82881.03	131175.81	0.234	30695.14	161870.94
	Sewerage	0.39	0.65	115517.37	75056.26	0.898	67400.52	142456.77
	Sanitation	0.75	1.25		0.00	0.000	0.00	0.00
	Water Supply	0.57	0.95	105778.52	100449.40	0.115	11551.68	112001.08
	RECREATION & CULTURE							
	Parks & Recreation	0.59	0.98	48889.77	48055.71	0.094	4517.24	52572.95
	Libraries	0.39	0.65	30684.73	19937.10	0.000	0.00	19937.10
	TOTAL MUNICIPAL EXPENDITURES							
	* (INCLUDING SANITATION)				773098.72		118358.89	891457.61
	* (NOT INCLUDING SANITATION)				698042.46		50958.37	749000.84
	SCHOOL DISTRICT (Enrollment >3000 students)	85.00	23.12	41716.20	964478.54	0.016	15431.66	979910.20
	TOTAL MUNICIPAL & SCHOOL DISTRICT EXPENDITURES							
	* (INCLUDING SANITATION)				1737577.26		133790.55	1871367.81
	* (NOT INCLUDING SANITATION)				1662521.01		66390.03	1728911.04

SOURCE: EAST PROVIDENCE, CITY BUDGET, 1985;
R. BURCHELL & D. LISTOKIN, 1983.

costs accruing from the development. The annual cost increases from $27,483 in the first phase to about $158,981 in the sixth and final phase.

(iii) Highways - Improvements and additions to the City's transportation network, occasioned by the new development, comprise about 22% of the total municipal expenses. The totals range from $27,982 in the first phase to about 161,871 in the final phase.

(iv) Other categories - Water Supply (15%) and Recreation (10%) are the two other categories that would be considerably impacted by the proposed development.

(v) School District - School District expenditures comprise about 61% of the total annual expenditures. The figures range from $201,746 in the first phase to about 979,910 in the final phase.

Costs incurred by the development (depending on public services)

The aggregate annual costs computed in this scenario include the service categories of sewage and sanitation. The expenditures due to the additional cost increases the annual expenditure by 7.5%. The service categories to be included in this scenario are:

(i) Sewage - The costs assigned to this category form 16% of the total municipal expenditures. The expenses range from $24,626 in the first phase to about $161,871 in the final phase.

(ii) Sanitation - Costs attributed to this category

were not computed due to lack of specific information regarding employees in the City.

Cost-Revenue Analysis

Tables 3.11A and 3.11B indicate the net fiscal impact calculated in each of the two scenarios.

(i) Privately managed complex - The development results in a deficit of $12,807 in the first phase only. The net fiscal impact later shows a surplus of $39,985 in the second phase to about $186,793 in the final phase.

(ii) Depending on public services - Here, the result shows a consistent deficit of $37,434 in the first phase, reducing to about $28,254 in the fifth phase. Only the final phase shows a resulting surplus of $44,337.

A Comparison of the Two Methods

The cost-revenue analysis by the above two methods show considerably different outcomes. The results of the two methods, and those of the analysis conducted by the Transcontinental Development Corporation, are summarized and compared below in terms of:

(i) Total population/school-age population generated - The population generated according to the Per Capita Multiplier Method is projected to be 1401 at the end of the final phase. The above method provides a lower estimate than the number generated (1666) by the Service Standard Method. Both of these projection however, a significantly higher than the 1200 figure projected by the TDC analysis (TDC, 1987). It can be

TABLE 3.11A

(COST-REVENUE ANALYSIS)
(NOT INCLUDING SANITATION)

	PHASE I	PHASE II	PHASE III	PHASE IV	PHASE V	PHASE VI
REVENUES GENERATED BY DEVPT.	318417.68	617340.4	925880.63	1242478.78	1574153.04	1915704.74
COSTS ACCRUING FROM DEVPT.						
* PER CAPITA MULTIPLIER METHOD	88349.10	170646.17	262404.96	350614.99	433051.13	511938.51
* SERVICE STANDARD METHOD	331225.35	577354.69	908580.04	1239805.40	1482781.70	1728911.04
NET FISCAL IMPACT						
* PER CAPITA MULTIPLIER METHOD	230068.58	446694.23	663475.67	891863.79	1141101.91	1403766.23
* SERVICE STANDARD METHOD	-12807.67	39985.71	17300.59	2673.38	91371.34	186793.7

TABLE 3.11B

(COST-REVENUE ANALYSIS)
(INCLUDING SANITATION)

	PHASE I	PHASE II	PHASE III	PHASE IV	PHASE V	PHASE VI
REVENUES GENERATED BY DEVPT.	318417.68	617340.4	925880.63	1242478.78	1574153.04	1915704.74
COSTS ACCRUING FROM DEVPT.						
* PER CAPITA MULTIPLIER METHOD	96523.04	186354.93	286287.67	382638.00	472642.60	559064.80
* SERVICE STANDARD METHOD	355851.73	624811.78	980663.51	1336515.25	1602407.77	1871367.81
NET FISCAL IMPACT						
* PER CAPITA MULTIPLIER METHOD	221894.64	430985.47	639592.96	859840.78	1101510.44	1356639.94
* SERVICE STANDARD METHOD	-37434.05	-7471.38	-54782.88	-94036.47	-28254.73	44336.93

SOURCE: EAST PROVIDENCE, TAX ASSESSOR, 1987;
EAST PROVIDENCE, CITY BUDGET, 1985;
R.BURCHELL & D. LISTOKIN, 1983.

safely assumed however, that the actual figure will fall between the estimates of the two costing methods (between 1401 and 1666).

The total school-age population projected by the Per Capita Multiplier Method and the TDC analysis, are 93 and 99 respectively. The estimate according to the Service Standard Method however, is significantly higher (272). As mentioned before, the multipliers used in the Fiscal Impact Handbook (R. Burchell & D. Listokin, 1983), could be dated, and therefore, may result in a conservative estimate when applied in the present context (1987). The higher figures projected by the Service Standard Method are probably due to the fact that only aggregate demographic multipliers were available instead of those according to specific housing types and sizes. The 93 to 99 estimate can only be used in a "best case scenario". The actual figure will most probably fall between 99 and 272 (say 150) students. A more detailed study of the impact of the development on the school system is conducted below.

(ii) Costs to the community - As can be seen in the above analysis, the costs accruing from the development as estimated by the Per Capita Multiplier Method ($511,939 in the final phase), are significantly lower than those estimated by the Service Standard Method ($1,728,911 in the final phase). The high costs generated Service

Standard Method could be largely attributed to a number of factors. First, the projection of students generated by the development is higher than in the Per Capita Multiplier Method, as a result of which educational expenses are proportionally higher for the Service Standard Method ($979,910 in the final phase) than those estimated by the Per Capita Multiplier Method ($317,102 in the final phase). Due to this, the actual school district expenses could fall between the above two estimates.

Second, the Service Standard Method computes the capital outlay required in addition to the operating expenses.

Thirdly, the service multipliers used in the Service Standard Method were those of a similar sized community in the Northeast.

It is possible that the level of public services assumed according to these multipliers is higher than the level of service provided by the City of East Providence, as a result of which the costs estimated by the Service Standard Method are overestimated to some extent. In spite of the slight overestimation, the municipal cost estimates according to the Service Standard Method could be closer to reality than the estimates according to the Per Capita Multiplier Method.

(iii) Net revenues generated - The net revenues generated by

the Per Capita Multiplier Method, in the final phase, shows a surplus of approximately $1,403,766 if the development is assumed to be privately managed and $1,356,639 if the development were to depend on the City for all public services. On the other hand, the Service Standard Method indicates a deficit of $12,807 in the first phase, which changes to a surplus ranging from $39,985 in the second phase to $186,794 in the final phase, if the development is assumed to be privately managed.

The fiscal picture looks extremely bleak if the development is assumed to depend on the City for all public services. Here, the analysis indicates a deficit running form $37,434 in the first phase, and to $28,254 in the fifth phase, finally changing to a surplus of about $44,336 in the final phase. The TDC analysis however, indicates that the costs to the City would be minimal and therefore, almost all of the revenues generated by the development, about $2,000,000 in the final phase, would result in a the net surplus to the City. It is possible that the revenues have been inflated and the costs deflated to some extent, so that the net cost- revenue impact indicates almost a 100% surplus. To be closer to the real picture, the costs according to the Service Standard Method could be overestimated and the actual numbers will fall closer, possibly a little higher than that estimated by the Per

Capita Multiplier Method.

Impact on the School system

As can be seen, educational costs form about 61% of the total costs incurred as a result of the development. Here total annual school district expenditures in the final phase range to about $317,102 according to the Per Capita Multiplier Method and about $979,910 according to the Service Standard Method.

Volume/Capacity Analysis

In order to delve deeper into the actual impacts on the school system, a volume/capacity analysis of the schools impacted by the system, was conducted. Table 3.12 shows the existing volume/capacity ratios and the future volume/capacity ratios for each of the schools affected. The three schools that would be affected by the development are:

(i) Hennessey Elementary School - As can be seen in Table 4.8, 60 new students will be added to existing population of 177 students in the Elementary school system. Thus the volume/ capacity ratio would increase from 0.787 to 1.077, thus pushing the system above capacity.

(ii) Martin Junior High - The capacity of the school is determined to be about 1200 students, if the system is to be flexible and 1520 students if pushed to the maximum limit. Here, a capacity of 1200 was chosen to determine the volume capacity ratios. The analysis shows that a total of 16 students would be

TABLE 3.12
SCHOOL SYSTEM: VOLUME/CAPACITY ANALYSIS
(PER CAPITA MULTIPLIER METHOD)

ANTICIPATED STUDENT POP. (FINAL PHASE)	GRADE	GRADE DISTRIBUTION MULTIPLIER	# OF STUDENTS ADDED	EXISTING VOLUME* (1986/87)	TOTAL STUDENTS
99	HENNESSEY ELEMENTARY SCHOOL				
	K	0.080	7.92	- *	7.92
	1	0.100	9.90	38	47.90
	2	0.091	9.01	40	49.01
	3	0.092	9.11	36	45.11
	4	0.076	7.52	40	47.52
	5	0.085	8.42	23	31.42
	6	0.087	8.61	- *	8.61
	TOTAL NUMBER OF STUDENTS ADDED		60		237
	TOTAL EXISTING VOLUME			177	
	EXISTING CAPACITY			225	
	PRESENT VOLUME/CAPACITY RATIO			0.787	
	FUTURE VOLUME			237	
	FUTURE VOLUME/CAPACITY RATIO			1.077	
	MARTIN JUNIOR HIGH				
	7	0.051	5.049	301	306.05
	8	0.053	5.247	346	351.25
	9	0.056	5.544	336	341.54
	SPECIAL ED.	-	-	19	19.00
	TOTAL NUMBER OF STUDENTS ADDED		16		1018
	TOTAL EXISTING VOLUME			1002	
	EXISTING CAPACITY			1200	
	PRESENT VOLUME/CAPACITY RATIO			0.835	
	FUTURE VOLUME			1018	
	FUTURE VOLUME/CAPACITY RATIO			0.848	
	EAST PROVIDENCE HIGH SCHOOL				
	10	0.080	7.92	568	575.92
	11	0.077	7.623	483	490.62
	12	0.073	7.227	504	511.23
	TOTAL NUMBER OF STUDENTS ADDED		23		1578
	TOTAL EXISTING VOLUME			1555	
	EXISTING CAPACITY			1500	
	PRESENT VOLUME/CAPACITY RATIO			1.037	
	FUTURE VOLUME			1578	
	FUTURE VOLUME/CAPACITY RATIO			1.052	

NOTE: * FIGURES FOR THE YEAR 1986/87 WERE NOT AVAILABLE
SOURCE: EAST PROVIDENCE, SCHOOL DEPARTMENT, 1987.

added to the existing student population of 1002 in the school system. Thus the volume/capacity ratio increases from an existing ratio of about 0.835 to about 0.848.

(iii) East Providence High School - The high school has a capacity of 1500 students. The present student enrollment volume is 1555; higher than the system can handle effectively. The addition of 23 students as a result of the development, pushes an already strained system further into a negative capacity.

The analysis indicates that the school system is already in excess of its designed capacity. Although the development does not dramatically increase the total school-age population, it produces a marginal increase in the school-age population. It must be kept in mind that these figures are a lower estimate generated by the Per Capita Multiplier Method (93). If the figure generated by the Service Standard Method (272) were to be used, the negative impact would be much higher.

Conclusions and Recommendations

It can be concluded from this section that the proposed development will generate a considerable number of residents (between 1400 and 1660) and school-aged children (between 99 and 272) to the City of East Providence. Further, it can be concluded that the site once developed to the final phase will provide an excess of $1,000,000 to the City's tax base. The results of the study however, differ considerably from

the $2,000,000 net revenues projected by the Transcontinental Development Corporation analysis. Even with the considerable revenues generated by the project, the site may still impact the community to a greater extent than anticipated. This is due primarily to the site's overall large size as well as to the possibility that the condominium association may in the future fail. The following recommendations will assist the City in addressing the fiscal impacts of this development as well as future developments along the waterfront.

(i) The results of this analysis show clearly that even though the City stands to gain (in terms of net revenues) from the development, it will have a significant impact on the three schools located near the proposed development site. The City must therefore, be aware of the effect of such a high density development, upon the local school system. It is clear that if the approval of such developments is allowed to continue in the future, the City could be faced with a high strain on its existing public service system. It is therefore suggested that along with any development proposal the community undertake, at the expense of the developer, an impact analysis of the development on the City's existing services and infrastructure (in terms of present and future volumes/capacities). This analysis should follow the methodologies used in this study.

(ii) Impact Fees - Originally employed in Florida, as a

result of tremendous growth, impact fees are being used to a great extent across the nation, and to some extent within Rhode Island (See Silverstein, 1986). Through the use of impact fees, the developer is responsible for partial or full improvement to infrastructural elements. East Providence might investigate the use of impact fees, and the development of the standard formula and framework necessary for its application. These fees, once exacted, can be placed in the City's general fund for capital improvements and used in a comprehensive infrastructural improvement program.

(iii) Rhode Island Infrastructural Improvement Fund (RIIIF)- Although not applicable in this instance, the RIIIF is made available by the State Department of Economic Development to developments which meet the following criteria. Firstly, the development must directly generate a significant amount of employment within the State. Secondly, salaries and wages of the new employees must reach or surpass state averages.

(iv) State Assistance for Infrastructural Improvement - As was stated in Chapter 2, future development along the waterfront, will have significant impact on Veterans Memorial Parkway (VMP) which is owned by the RI Department of Environmental Management. It is recommended that the City open discussions with DEM and Department of Transportation (DOT) concerning improvements to VMP. A development of the magnitude of

the proposed Kettle Point residential complex and the prospect of future development along the waterfront, should help move VMP to a high priority position for improvements at the State level.

The goals of a community ought not to be solely related to economic and fiscal considerations. There are other, equally important public goals that a community ought to consider when it contemplates growth of any kind. Fiscal impact analyses are valuable techniques that communities can use when evaluating the effect of growth on a community. But they are limited in terms of analysing the different areas that are going to be impacted by a development. Prior to the approval of future proposals, the City should therefore consider conducting a comprehensive impact study of their effect on the waterfront.

CHAPTER IV

PRO FORMA ANALYSIS

CHAPTER IV

PRO FORMA ANALYSIS

Until recently, pro forma/real estate analysis has been used in the planning process only to a limited extent. Communities have traditionally relied on intergovernmental revenues. Because such revenues are limited, fiscal pressures are forcing cities and city planners to work closely with the private sector in order to realize mutual benefits. In this changing context, to be on par with the developer, planners have to develop a working knowledge of the mechanics of the real estate financing process.

"The principal tool of real estate analysis is the pro forma, a projection of the economic and financial performance of a proposed project." (Dowall, D. E., 1985.)

Planners can utilize real estate pro forma analysis to gauge the sensitivity of a development proposal to various changes that the city or community might suggest. Pro forma analysis therefore allows the planner to articulate costs and revenues accruing from a development, thus putting him in a position to negotiate feasible alternatives of a development proposal.

In this case, it has been used to analyse the sensitivity of a residential waterfront development proposal in the City of East Providence, to a variety of scenarios focussing on density reduction.

The use of the pro forma analysis is by no means limited

to the type of analysis utilized in this chapter. Some of the other settings in which real estate pro forma analysis can be applied to planning are:

(i) To determine if a developer has the ability to pay fees and exactions required by the city. In the future, the City may wish to use this analysis in determining the feasibility and magnitude of impact fees which can be exacted from developments;

(ii) To determine the sensitivity of a development to inclusionary requirements for low and middle-income housing;

(iv) Lastly, it can be used in designing programs that are directed at achieving other public goals. In this respect, the city could determine the extent to which they can require the provision of plazas, open space and public access to the waterfront on proposed development sites (Dowall, D. E., 1985).

At a time when planning professionals are coming to a realization that a public/private partnership between the city and potential developers is necessary to meet community goals, and insure developments which are harmonious with their surroundings and the city as a whole, the pro forma analysis provides an invaluable technique for negotiation.

It affords the community decision makers the ability to design feasible alternative scenarios which provide mutual benefits for the developer as well as the community. In this way, the community is better able to negotiate with

developers without forcing the developer to seek an alternative location.

The Context

An issue of critical importance to the City of East Providence concerning the proposed residential project at Kettle Point, is the density of the development. The project proposes the construction of 600 residential units on a total land area of approximately 41 acres. The project therefore has a gross density of 14.5 units/acre and is in keeping with the City's regulations for an R-5 residential zone (15 units/acre).

The Department of City Planning & Development is aware that although the proposed density is allowable by code regulations, the magnitude and nature of the development (65 foot high structures) may require the density to be reduced. This issue has been at the forefront of discussions within the local government and during subsequent presentations of the proposal to the community and also reflects the attitude of the community towards the development.

We have been asked by the City to investigate feasible alternatives to the proposed 600 unit development, with a primary focus on the unit mix and overall density. It is therefore the intent of this section to:

(i) Determine the most desirable alternative, i.e. an alternative that would provide a reduction in density, while allowing the Transcontinental Development Corporation to realize a desirable return on their

investment.

(ii) Compare this particular development to other similar waterfront development projects in terms of their gross density.

In an attempt to address these issues, this section utilizes a real estate pro forma analysis; which computes the resulting benefits/losses to the developer by comparing the total costs incurred and revenues obtained upon the sale of the units. The analysis further tests the sensitivity of the profits (accruing to the developer) to alternative density scenarios.

It is hoped that the analysis would provide the City with the necessary information to negotiate with the developer for a reduction in the density of the project. The reduced density will also bring other benefits such a reduction of the negative impacts on traffic, the fiscal situation and other infrastructural costs to the City. In the long-term, such an analysis, if it provides a sound rationale for reducing density, can be used by the City to negotiate with future waterfront developments.

It should be borne in mind that this chapter is a pro forma analysis and as such, is subject to change as design and construction continues on the initial proposal. The analysis has been presented here in order to provide the City of East Providence with a basis on which to analyse density alternatives for future development proposals. Thus the City can embark on a plan for waterfront development, which seeks

to achieve public goals, while recognizing the developer's interests in realizing a reasonable rate of return on his investment.

The Proposed Development

In the previously conducted traffic and fiscal impact analyses, general information concerning the project's design characteristics has been used. This included 600 units with approximately 60% condominiums and 40% townhouses and terrace houses. Detailed design information was made available only after the developer filed an application requesting for rezoning the site from industrial (I2) to a Planned Unit Development (PUD). The following analysis therefore differs from the previously conducted traffic and fiscal impact analyses in terms of design changes and degree of detail.

The following section outlines the specific characteristics of the development that have been employed in this analysis.

Briefly, the development proposal calls for the construction of 600 residential units at Kettle Point; a 41 acre parcel along the east coast of the City of East Providence. The project has been designed in 6 phases, extending over as many years (1987 to 1992). A breakdown of the unit numbers and mix (TDC, PUD Application, 1st April, 1987) is provided in Table 4.1.

TABLE 4.1

CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

UNIT TYPE	SQ.FT./ UNIT	PHASE I	PHASE II	PHASE III	PHASE IV	PHASE V	PHASE VI
MIDRISE							
STUDIO	650	0	6	0	6	0	0
ONE BEDROOM	850	0	30	0	30	0	0
TWO BEDROOM	1250	0	84	0	84	0	0
TOWNHOUSES							
TWO BEDROOM	1300 ¦ 1400 ¦-- 1500 ¦	23	0	40	0	23	14
THREE BEDROOM	2100	0	0	0	17	5	13
TERRACE							
ONE BEDROOM	850	9	0	7	3	5	0
TWO BEDROOM	1250	48	0	71	30	52	0
TOTAL NO. OF UNITS PER PHASE		80	120	118	170	85	27

SOURCE: TRANSCONTINENTAL DEVELOPMENT CORPORATION, PUD APPLICATION, APRIL, 1987.

It should be borne in mind that the following pro forma calculations are based on the above mentioned information and may be subject to change in the future for the following reasons. First, it is highly likely that some of the assumptions made in this analysis such as, the unit mix and time period of construction, may change in response to fluctuations in the real estate market. Secondly, as far as the phased development of the project is concerned, the City's PUD ordinance allows a phased project a maximum completion period of 7 years with an additional allowance of 2 years, if the City so desires. The initial approval of the

zoning change and the subdivision concept does not mean approval of the entire project, rather, all individual phases are subject to change upon the recommendations of the Planning Board. Lastly, some figures for the cost per square foot, for construction have been approximated due to the lack of specific data as to the type of construction (the consultant company proposes to hold back any specific design development until the Planning Board approves the concept proposal).

Methodology

The methodology used for the analysis is generally outline below:

(i) Estimation of the construction costs for every phase of the development (R.S.Means, 1987);

(ii) Estimate other (non-constructional) costs;

(iii) Compare the estimated costs to the information provided by the developer;

(iv) Estimate revenues accruing in each phase, based on sales price estimates provided by the developer;

(v) Conduct a cost-revenue analysis for each phase of the development; and

(vi) Study cost-revenue analyses for alternative density scenarios.

Step 1 - Estimation of Construction Costs

Various characteristics of the development were considered while assigning costs per square foot of construction. The criteria used for the selection of costs

include:

(i) Class of construction. Here it was determined to be "custom", defined as,

"built from a designers plans which have been modified to give the building a distinction of design and where the materials and workmanship are above average with attention given to construction details, with construction normally exceeding building codes" (R. S. Means, 1987).

(ii) Unit type (townhouse, terrace , midrise apartment);

(iii) Building height and unit configuration; and

(iv) Material used for structural and exterior construction of buildings.

Step 2 -Estimation of Non-Constructional Costs

Other costs to the developer were calculated as a percentage of construction costs (e.g. architect's fees, advertising), while others were assumed to be constant due to lack of more detailed information (e.g. insurance, real estate taxes, etc.).

Step 3 - Comparison of Costs as Provided by the Developer and the Estimated Costs

This section compares the results of the developer's project costs with those estimated by our analysis.

Step 4 - Estimation of Revenues

For this portion of the analysis, no specific sales prices were available from the developer. Therefore, the approximate range of sales prices; from $150,000 to $250,000

(provided by the developer) were assigned to units according to their characteristics (e.g. studio apartments - $100,000 and 3 bedroom townhouses - $250,000). Information from the Real Estate Multiple Listing Service supports the sales price estimates.

Step 5 - Cost-Revenue Analysis

Here, the estimated costs are deducted from the estimated revenues accruing from the project. Thus the rate of return on the developer's investment is determined.

Step 6 - Alternative Density Scenarios

The final step analyzes the sensitivity of the rate of return to alternative densities, to the original 600 unit proposal.

Analysis - Scenario I

Construction Costs

Tables 4.2A to 4.2F show the total costs of construction through each of the six phases. According to the procedures for cost estimation in R. S. Means, it has been determined that the construction costs for units in the midrise buildings are an average of $65/sq.ft., while two and three bedroom townhouses cost approximately $64.50 and $56.50 respectively. The costs have been adjusted for the geographic location of the development (Location Factor for Providence, R. I. is 0.99). Wherever necessary (phases II to VI), construction costs have been adjusted for an annual inflation rate of 5%. Construction costs for the phases begin at $6,279,068 (80 units) in the first phase and peak at

TABLE 4.2A

TOTAL CONSTRUCTION COSTS (PHASE I)

UNIT TYPE	COST/ SQ.FT.	# SQ.FT./ UNIT TYPE	COST/ EACH UNIT	EXTRAS CIRCULATION + GARAGE (IF ANY)	TOTAL COST/ EACH UNIT	TOTAL # UNITS	TOTAL COST/ UNITS
MIDRISE			15% CIRCULATION SPACE				
STUDIO	65.00	650	42250.00	6337.50	48587.50	0	0.00
ONE BEDROOM	65.00	850	55250.00	8287.50	63537.50	0	0.00
TWO BEDROOM	65.00	1250	81250.00	12187.50	93437.50	0	0.00
TOWNHOUSES			COST OF GARAGE UNIT = $1175				
TWO BEDROOM	64.50	1423	91783.50	1175.00	92958.5	23	2138045.50
THREE BEDROOM	56.50	2100	118650.00	1175.00	119825.00	0	0.00
TERRACE			10% CIRCULATION SPACE				
ONE BEDROOM	56.50	850	48025.00	4802.50	52827.50	9	475447.50
TWO BEDROOM	56.50	1250	70625.00	7062.50	77687.50	48	3729000.00
TOTAL NUMBER OF UNITS						80	
TOTAL CONSTRUCTION COSTS							6342493.00
LOCATION FACTOR FOR PROVIDENCE, R.I.							0.99
ACTUAL TOTAL CONSTRUCTION COSTS							6279068.07

SOURCE: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987;
CONSTRUCTION COSTS: R.S. MEANS, 1987.

TABLE 4.2B

TOTAL CONSTRUCTION COSTS (PHASE II)

UNIT TYPE	COST/ SQ.FT.	# SQ.FT./ UNIT TYPE	COST/ EACH UNIT	EXTRAS CIRCULATION + GARAGE (IF ANY)	TOTAL COST/ EACH UNIT	TOTAL # UNITS	TOTAL COST/ UNITS
MIDRISE				15% CIRCULATION SPACE			
STUDIO	65.00	650	42250.00	6337.50	48587.50	6	291525.00
ONE BEDROOM	65.00	850	55250.00	8287.50	63537.50	30	1906125.00
TWO BEDROOM	65.00	1250	81250.00	12187.50	93437.50	84	7848750.00
TOWNHOUSES				COST OF GARAGE UNIT = $1175			
TWO BEDROOM	64.50	1423	91783.50	1175.00	92958.5	0	0.00
THREE BEDROOM	56.50	2100	118650.00	1175.00	119825.00	0	0.00
TERRACE				10% CIRCULATION SPACE			
ONE BEDROOM	56.50	850	48025.00	4802.50	52827.50	0	0.00
TWO BEDROOM	56.50	1250	70625.00	7062.50	77687.50	0	0.00

TOTAL NUMBER OF UNITS	120
TOTAL CONSTRUCTION COSTS	10046400.00
LOCATION FACTOR FOR PROVIDENCE, R.I.	0.99
ACTUAL TOTAL CONSTRUCTION COSTS	9945936.00
ANNUAL INFLATION	0.05
FUTURE TOTAL CONSTRUCTION COSTS	10443232.8

SOURCE: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987;
CONSTRUCTION COSTS: R.S. MEANS, 1987.

TABLE 4.2C

TOTAL CONSTRUCTION COSTS (PHASE III)

UNIT TYPE	COST/ SQ.FT.	# SQ.FT./ UNIT TYPE	COST/ EACH UNIT	EXTRAS CIRCULATION + GARAGE (IF ANY)	TOTAL COST/ EACH UNIT	TOTAL # UNITS	TOTAL COST/ UNITS
MIDRISE			15% CIRCULATION SPACE				
STUDIO	65.00	650	42250.00	6337.50	48587.50	0	0.00
ONE BEDROOM	65.00	850	55250.00	8287.50	63537.50	0	0.00
TWO BEDROOM	65.00	1250	81250.00	12187.50	93437.50	0	0.00
TOWNHOUSES			COST OF GARAGE UNIT = $1175				
TWO BEDROOM	64.50	1423	91783.50	1175.00	92958.5	40	3718340.00
THREE BEDROOM	56.50	2100	118650.00	1175.00	119825.00	0	0.00
TERRACE			10% CIRCULATION SPACE				
ONE BEDROOM	56.50	850	48025.00	4802.50	52827.50	7	369792.50
TWO BEDROOM	56.50	1250	70625.00	7062.50	77687.50	71	5515812.50

TOTAL NUMBER OF UNITS	118
TOTAL CONSTRUCTION COSTS	9603945.00
LOCATION FACTOR FOR PROVIDENCE, R.I.	0.99
ACTUAL TOTAL CONSTRUCTION COSTS	9507905.55
ANNUAL INFLATION	0.05
FUTURE TOTAL CONSTRUCTION COSTS	10482465.87

SOURCE: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987;
CONSTRUCTION COSTS: R.S. MEANS, 1987.

TABLE 4.2D

TOTAL CONSTRUCTION COSTS (PHASE IV)

UNIT TYPE	COST/ SQ.FT.	# SQ.FT./ UNIT TYPE	COST/ EACH UNIT	EXTRAS CIRCULATION + GARAGE (IF ANY)	TOTAL COST/ EACH UNIT	TOTAL # UNITS	TOTAL COST/ UNITS
MIDRISE				15% CIRCULATION SPACE			
STUDIO	65.00	650	42250.00	6337.50	48587.50	6	291525.00
ONE BEDROOM	65.00	850	55250.00	8287.50	63537.50	30	1906125.00
TWO BEDROOM	65.00	1250	81250.00	12187.50	93437.50	84	7848750.00
TOWNHOUSES				COST OF GARAGE UNIT = $1175			
TWO BEDROOM	64.50	1423	91783.50	1175.00	92958.5	0	0.00
THREE BEDROOM	56.50	2100	118650.00	1175.00	119825.00	17	2037025.00
TERRACE				10% CIRCULATION SPACE			
ONE BEDROOM	56.50	850	48025.00	4802.50	52827.50	3	158482.50
TWO BEDROOM	56.50	1250	70625.00	7062.50	77687.50	30	2330625.00

TOTAL NUMBER OF UNITS	170
TOTAL CONSTRUCTION COSTS	14572532.50
LOCATION FACTOR FOR PROVIDENCE, R.I.	0.99
ACTUAL TOTAL CONSTRUCTION COSTS	14426807.18
ANNUAL INFLATION	0.05
FUTURE TOTAL CONSTRUCTION COSTS	16700832.66

SOURCE: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987;
CONSTRUCTION COSTS: R.S. MEANS, 1987.

TABLE 4.2E

TOTAL CONSTRUCTION COSTS (PHASE V)

UNIT TYPE	COST/ SQ.FT.	# SQ.FT./ UNIT TYPE	COST/ EACH UNIT	EXTRAS CIRCULATION + GARAGE (IF ANY)	TOTAL COST/ EACH UNIT	TOTAL # UNITS	TOTAL COST/ UNITS
MIDRISE				15% CIRCULATION SPACE			
STUDIO	65.00	650	42250.00	6337.50	48587.50	0	0.00
ONE BEDROOM	65.00	850	55250.00	8287.50	63537.50	0	0.00
TWO BEDROOM	65.00	1250	81250.00	12187.50	93437.50	0	0.00
TOWNHOUSES				COST OF GARAGE UNIT = $1175			
TWO BEDROOM	64.50	1423	91783.50	1175.00	92958.5	23	2138045.50
THREE BEDROOM	56.50	2100	118650.00	1175.00	119825.00	5	599125.00
TERRACE				10% CIRCULATION SPACE			
ONE BEDROOM	56.50	850	48025.00	4802.50	52827.50	5	264137.50
TWO BEDROOM	56.50	1250	70625.00	7062.50	77687.50	52	4039750.00

TOTAL NUMBER OF UNITS	85
TOTAL CONSTRUCTION COSTS	7041058.00
LOCATION FACTOR FOR PROVIDENCE, R.I.	0.99
ACTUAL TOTAL CONSTRUCTION COSTS	6970647.42
ANNUAL INFLATION	0.05
FUTURE TOTAL CONSTRUCTION COSTS	8472865.51

SOURCE: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987;
CONSTRUCTION COSTS: R.S. MEANS, 1987.

TABLE 4.2F

TOTAL CONSTRUCTION COSTS (PHASE VI)

UNIT TYPE	COST/ SQ.FT.	# SQ.FT./ UNIT TYPE	COST/ EACH UNIT	EXTRAS CIRCULATION + GARAGE (IF ANY)	TOTAL COST/ EACH UNIT	TOTAL # UNITS	TOTAL COST/ UNITS
MIDRISE				15% CIRCULATION SPACE			
STUDIO	65.00	650	42250.00	6337.50	48587.50	0	0.00
ONE BEDROOM	65.00	850	55250.00	8287.50	63537.50	0	0.00
TWO BEDROOM	65.00	1250	81250.00	12187.50	93437.50	0	0.00
TOWNHOUSES				COST OF GARAGE UNIT = $1175			
TWO BEDROOM	64.50	1423	91783.50	1175.00	92958.5	14	1301419.00
THREE BEDROOM	56.50	2100	118650.00	1175.00	119825.00	13	1557725.00
TERRACE				10% CIRCULATION SPACE			
ONE BEDROOM	56.50	850	48025.00	4802.50	52827.50	0	0.00
TWO BEDROOM	56.50	1250	70625.00	7062.50	77687.50	0	0.00

TOTAL NUMBER OF UNITS	27
TOTAL CONSTRUCTION COSTS	2859144.00
LOCATION FACTOR FOR PROVIDENCE, R.I.	0.99
ACTUAL TOTAL CONSTRUCTION COSTS	2830552.56
ANNUAL INFLATION	0.05
FUTURE TOTAL CONSTRUCTION COSTS	3612582.04

TOTAL CONSTRUCTION COSTS FOR THE ENTIRE PROJECT = 55991046.944

SOURCE: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987;
CONSTRUCTION COSTS: R.S. MEANS, 1987.

about $16,700,832 in the fourth phase (170 units). The estimated costs for the entire project are $55,991,048. Table 4.3 compares the phased construction costs estimated by the TDC and those estimated by our analysis. The comparison indicates that the construction costs according to both estimates are more or less similar.

TABLE 4.3

COMPARISON OF CONSTRUCTION COST ESTIMATES

	PHASE I	PHASE II	PHASE III	PHASE IV	PHASE V	PHASE VI	TOTALS
TDC CORPORATION	9000000	9450000	9920000	10410000	10930000	11440000	61150000
# UNITS PER PHASE	100	100	100	100	100	100	600
ANALYSIS	6279068	10443232	10482465	16700832	8472865	3612582	55991044
# UNITS PER PHASE	80	120	118	170	85	27	600
DIFFERENCE	2720932	-993232	-562465	-6290832	2457135	7827418	5158956

SOURCES: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987.

Non-Constructional Costs

Tables 4.4 and 4.5 are pro forma spreadsheets for the newly estimated costs and the developer's projected costs respectively. Non-constructional costs in most of the categories of expenditure were determined as follows:

(i) Land costs were assumed to be the same as those provided in the TDC pro forma;

(ii) A certain proportion of construction costs (architectural, = 3.6%). The actual percentage values were determined from the pro forma provided by the TDC;

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EXTENDED PROJECT DEVELOPMENT COST

	1987 Phase 1 100 Units	1988 Phase 2 100 Units	1989 Phase 3 100 Units	1990 Phase 4 100 Units	1991 Phase 5 100 Units	1992 Phase 6 100 Units	Totals
Construction Costs	$9,000,000	$9,450,000	$9,920,000	$10,410,000	$10,930,000	$11,480,000	$61,200,000
Land Acquisition	3,250,000	2,050,000	1,950,000	1,850,000	1,750,000	1,650,000	12,900,000
Architect	315,000	330,750	347,200	364,350	382,550	402,150	2,142,000
Engineering	200,000	10,000	10,000	10,000	10,000	10,000	250,000
Survey	20,000	2,000	2,000	2,000	2,000	2,000	30,000
Accounting	9,000	6,000	6,000	6,000	6,000	7,000	40,000
Legal	150,000	50,000	50,000	50,000	50,000	50,000	400,000
Advertising	500,000	225,000	225,000	225,000	225,000	25,000	1,425,000
Insurance	22,000	22,000	22,000	22,000	22,000	20,000	130,000
Real Estate Taxes	25,000	15,000	15,000	15,000	15,000	15,000	100,000
Administrative	450,000	425,000	425,000	425,000	425,000	425,000	2,575,000
Marketing	700,000	550,000	550,000	500,000	475,000	475,000	3,250,000
Interest On Equity/Land Loan	408,250	123,500	0	0	0	0	531,750
Bank Fee	250,000	220,000	225,000	230,000	235,000	240,000	1,400,000
Bank Appraisal	25,000	5,000	5,000	5,000	5,000	5,000	50,000
Bank Engineering	25,000	28,000	28,000	28,000	28,000	28,000	165,000
Bank Legal	10,000	5,000	5,000	5,000	5,000	5,000	35,000
Subtotal	$15,379,250	$13,517,250	$13,785,200	$14,147,350	$14,565,550	$14,849,150	$86,243,750
Construction Interest	876,617	770,483	785,756	806,799	830,236	846,402	4,915,894
Contingency	307,585	270,345	275,704	282,947	291,311	296,983	1,724,875
Total	$16,563,452	$14,558,078	$14,846,660	$15,236,096	$15,687,097	$15,992,535	$92,884,519

Source: TDC, 1987

Project Development Costs

TABLE 4.4

TABLE 4.5

ESTIMATED PROJECT DEVELOPMENT COSTS
(SCENARIO I)

	1987 PHASE I 80 UNITS	1988 PHASE II 120 UNITS	1989 PHASE III 118 UNITS	1990 PHASE IV 170 UNITS	1991 PHASE V 85 UNITS	1992 PHASE VI 27 UNITS	TOTAL COSTS
CONSTRUCTION COSTS	6279068	10443233	10482466	16700833	8472866	3612582	55991048
LAND ACQUISITION	3250000	2050000	1950000	1850000	1750000	1650000	12500000
ARCHITECT	219767	365513	366886	584529	296550	126440	1959687
ENGINEERING	200000	10000	10000	10000	10000	10000	250000
SURVEY	20000	2000	2000	2000	2000	2000	30000
ACCOUNTING	6279	6266	6289	10020	5084	2168	36106
LEGAL	150000	50000	50000	50000	50000	50000	400000
INSURANCE	15070	25064	25158	40082	20335	8670	134379
ADMINISTRATIVE	313953	469945	471711	751537	381279	162566	2550993
ADVERTISING	345349	240194	241097	384119	194876	7948	1413583
MARKETING	489767	605708	576536	801640	364333	148116	2986100
REAL ESTATE TAXES	25000	15000	15000	15000	15000	15000	100000
INTEREST ON EQUITY/LAND LOAN	408250	123500	0	0	0	0	531750
BANK FEE	250000	220000	225000	230000	235000	240000	1400000
BANK APPRAISAL	25000	5000	5000	5000	5000	5000	50000
BANK ENGINEERING	25000	28000	28000	28000	28000	28000	165000
BANK LEGAL	30000	5000	5000	5000	5000	5000	55000
SUBTOTAL	12052504	14664423	14460143	21467761	11835323	6073490	80553644
CONSTRUCTION INTEREST	621628	855301	830211	1292644	640549	266609	4506942
CONTINGENCY	223164	307053	298046	464059	229957	95712	1617992
TOTAL COSTS	12897296	15826777	15588400	23224465	12705829	6435811	86678578

SOURCE: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987.

(iii) Some were held constant due to the non-availability of detailed information (e.g. bank fees, real estate taxes, etc);

(iv) Construction interest in the first phase was estimated by assuming a 90% loan at 11% interest, while those for the following years were approximated at 85% at 9% interest.

As can be seen, the non-constructional costs per phase differ, while the total estimates according to both analyses, are similar. The difference between the costs in each phase can be attributed to the difference in the estimation of constructional costs and the unit mix used in the two analyses (See Table 4.3). The total project development costs according to TDC are approximately $92,884,519, while those estimated from the analysis are $86678578, therefore indicating a possible overestimation of $6,205,942 in the initial pro forma analysis of the development.

Estimation of Revenues

As mentioned above, the developer's estimates of sales prices were assigned to the different unit types in order to ascertain revenues accruing from each phase of the development. As in the case of the costs, the revenues have been adjusted for an annual inflation rate of 5% wherever necessary (phases II to VI). Finally, in order to realistically project the actual revenues for a development of this quality and magnitude, an annual vacancy rate of about 8% was applied. As can be seen in Table 4.6, the

revenues range from a total of $15,042,000 in the first phase to about $7,514,746 in the final phase, with maximum revenues of $32,562,834 being generated in the fourth phase (170 units).

TABLE 4.6

ESTIMATED REVENUES GENERATED
(SCENARIO I)

PHASE	REVENUES
PHASE I	15042000
PHASE II	19126800
PHASE III	24774278
PHASE IV	32562834
PHASE V	19793304
PHASE VI	7514746
TOTAL	118813962

SOURCES: E. PROV., TAX ASSESSOR, 1987;

Cost-Revenue Analysis

This section of the analysis determines the return that the developer realizes on his investment. Due to lack of more specific information from the developer regarding the financing of the project such as, equity investment, syndication, loan amount and the interest charged, we derived a simple technique to determine the return on the developer's investment in the project. The total costs incurred in each phase were deducted from the revenues accruing from each phase. The net return was then determined as a percent of the costs incurred in each phase of the development of the project. As can be seen in Table 4.7A, the return on the

TABLE 4.7A

COST-REVENUE ANALYSIS (SCENARIO I)

	1987 PHASE I	1988 PHASE II	1989 PHASE III	1990 PHASE IV	1991 PHASE V	1992 PHASE VI	TOTAL COSTS/
NUMBER OF UNITS BUILT	80	120	118	170	85	27	600
NUMBER OF UNITS OCC.	73	109	107	155	77	25	546
TOTAL COSTS	12639691	15832658	15594536	23271021	12698902	6397293	86434101
TOTAL REVENUES	15042000	19126800	24774278	32562834	19793304	7514746	118813961
NET REVENUES	2402309	3294142	9179742	9291813	7094402	1117453	32379860
INFLATION							5.00%
PRESENT VAL. OF REVENUES	2402309	3137278	8326296	8026617	5836582	875554	28604636
% RETURN ON INVESTMENT	19.01%	20.81%	58.87%	39.93%	55.87%	17.47%	37.46%

TABLE 4.7B

COST-REVENUE ANALYSIS (SCENARIO II)

	1987 PHASE I	1988 PHASE II	1989 PHASE III	1990 PHASE IV	1991 PHASE V	1992 PHASE VI	TOTAL COSTS/
NUMBER OF UNITS	80	120	118	170	85	0	573
NUMBER OF UNITS OCC.	73	109	107	155	77	0	521
TOTAL COSTS	12897296	15826777	15588400	23224465	12705829	6435811	86678578
TOTAL REVENUES	15042000	19126800	24774278	32562834	19793304	0	111299215
NET REVENUES	2144704	3300023	9185878	9338369	7087475	-6435811	24620637
INFLATION							5.00%
PRESENT VAL. OF REVENUES	2144704	3142879	8331862	8066834	5830883	-5042626	22474535
% RETURN ON INVESTMENT	16.63%	20.85%	58.93%	40.21%	55.78%	-100.00%	28.40%

TABLE 4.7C

COST-REVENUE ANALYSIS (SCENARIO III)

	1987 PHASE I	1988 PHASE II	1989 PHASE III	1990 PHASE IV	1991 PHASE V	1992 PHASE VI	TOTAL COSTS/
NUMBER OF UNITS	80	120	118	105	100	27	550
NUMBER OF UNITS OCC.	73	109	107	96	91	25	501
TOTAL COSTS	12897296	15826777	15588400	14938463	14569270	6435811	80256017
TOTAL REVENUES	15042000	19126800	24774278	19942406	22533055	7514746	108933284
NET REVENUES	2144704	3300023	9185878	5003943	7963785	1078935	28677267
INFLATION							5.00%
PRESENT VAL. OF REVENUES	2144704	3142879	8331862	4322594	6551826	845374	25339238
% RETURN ON INVESTMENT	16.63%	20.85%	58.93%	33.50%	54.66%	16.76%	35.73%

TABLE 4.7D

COST-REVENUE ANALYSIS (SCENARIO IV)

	1987 PHASE I	1988 PHASE II	1989 PHASE III	1990 PHASE IV	1991 PHASE V	1992 PHASE VI	TOTAL COSTS/
NUMBER OF UNITS	80	120	118	105	100	0	523
NUMBER OF UNITS OCC.	73	109	107	96	91	0	476
TOTAL COSTS	12897296	15826777	15588400	14938463	14569270	2090712	75910918
TOTAL REVENUES	16350000	20790000	26928563	19942406	22533055	0	106544024
NET REVENUES	3452704	4963223	11340163	5003943	7963785	-2090712	30633106
INFLATION							5.00%
PRESENT VAL. OF REVENUES	3452704	4726879	10285862	4322594	6551826	-1638128	27701737
% RETURN ON INVESTMENT	26.77%	31.36%	72.75%	33.50%	54.66%	-100.00%	40.35%

SOURCES: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987;
EAST PROVIDENCE, TAX ASSESSOR, 1987.

TABLE 4.8

ESTIMATED PROJECT DEVELOPMENT COSTS
(SCENARIO II)

	1987 PHASE I 80 UNITS	1988 PHASE II 120 UNITS	1989 PHASE III 118 UNITS	1990 PHASE IV 170 UNITS	1991 PHASE V 85 UNITS	1992 PHASE VI 27 UNITS	TOTAL COSTS
CONSTRUCTION COSTS	6279068	10443233	10482466	16700833	8472866	3612582	55991048
LAND ACQUISITION	3250000	2050000	1950000	1850000	1750000	1650000	12500000
ARCHITECT	219767	365513	366886	584529	296550	126440	1959687
ENGINEERING	200000	10000	10000	10000	10000	10000	250000
SURVEY	20000	2000	2000	2000	2000	2000	30000
ACCOUNTING	6279	6266	6289	10020	5084	2168	36106
LEGAL	150000	50000	50000	50000	50000	50000	400000
INSURANCE	15070	25064	25158	40082	20335	8670	134379
ADMINISTRATIVE	313953	469945	471711	751537	381279	162566	2550993
ADVERTISING	345349	240194	241097	384119	194876	7948	1413583
MARKETING	489767	605708	576536	801640	364333	148116	2986100
REAL ESTATE TAXES	25000	15000	15000	15000	15000	15000	100000
INTEREST ON EQUITY/LAND LOAN	408250	123500	0	0	0	0	531750
BANK FEE	250000	220000	225000	230000	235000	240000	1400000
BANK APPRAISAL	25000	5000	5000	5000	5000	5000	50000
BANK ENGINEERING	25000	28000	28000	28000	28000	28000	165000
BANK LEGAL	30000	5000	5000	5000	5000	5000	55000
SUBTOTAL	12052504	14664423	14460143	21467761	11835323	6073490	80553644
CONSTRUCTION INTEREST	621628	855301	830211	1292644	640549	266609	4506942
CONTINGENCY	223164	307053	298046	464059	229957	95712	1617992
TOTAL COSTS	12897296	15826777	15588400	23224465	12705829	6435811	86678578

SOURCE: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987.

total investment, in terms of the entire project, is 37.07%. The minimum returns occur in the first phase ($16.63%), while the returns peak in the third phase of the project ($58.93%). By discounting the revenues generated in each phase, for an annual inflation rate of 5%, the net present value of the project was determined to be $28,362,535.

Alternative Density Scenarios

It has therefore been determined that the developer has the potential to make a considerable profit on his initial investment. The analysis has determined the actual return to be in the area of 37.07%.

The remainder of this analysis focuses on the development of three alternative reduced density scenarios in order to provide the City of East Providence with a basis from which to analyse the developer's proposal, and subsequently recommend a density reduction. The scenarios are also tested for the sensitivity of the net returns to various reduced density alternatives. Tables 4.7B to 4.7D show the various cost-revenue analyses for the three development alternatives.

Scenario II

In the case of this alternative, the analysis focussed on keeping the 4.16 acres on the "point", beyond the railway lines as an open space. The developer's proposal involves building 27 two and three bedroom townhouses (this is a considerable improvement upon the original proposal to build about 40 midrise units). The reasons for choosing this

alternative were:

(i) The developer plans to dedicate part of the area around the "point" and the proposed marina, as public recreational space. It would therefore be more aesthetically desirable to have the entire area as open land;

(ii) The only point of access and egress to this portion of the site exists via an easement over the railway lines. The City has expressed considerable concern about the fact that this may be inappropriate for adequate fire and police protection; and

(iv) The units in this section of the site (to be constructed in the final phase) may prove to be unmarketable if the rail line is reopened.

TABLE 4.9

ESTIMATED REVENUES GENERATED
(SCENARIO II)

PHASE	REVENUES
PHASE I	15042000
PHASE II	19126800
PHASE III	24774278
PHASE IV	32562834
PHASE V	19793304
PHASE VI	0
TOTAL	111299216

SOURCES: E. PROV., TAX ASSESSOR, 1987;

Table 4.8 shows the total cost estimates for the scenario. Here, the changes are shown to occur only in the

TABLE 4.10

ESTIMATED PROJECT DEVELOPMENT COSTS
(SCENARIO III)

	1987 PHASE I 80 UNITS	1988 PHASE II 120 UNITS	1989 PHASE III 118 UNITS	1990 PHASE IV 105 UNITS	1991 PHASE V 100 UNITS	1992 PHASE VI 27 UNITS	TOTAL COSTS
CONSTRUCTION COSTS	6279068	10443233	10482466	10120393	9961546	3612582	50899288
LAND ACQUISITION	3250000	2050000	1950000	1850000	1750000	1650000	12500000
ARCHITECT	219767	365513	366886	354214	348654	126440	1781475
ENGINEERING	200000	10000	10000	10000	10000	10000	250000
SURVEY	20000	2000	2000	2000	2000	2000	30000
ACCOUNTING	6279	6266	6289	6072	5977	2168	33051
LEGAL	150000	50000	50000	50000	50000	50000	400000
INSURANCE	15070	25064	25158	24289	23908	8670	122158
ADMINISTRATIVE	313953	469945	471711	455418	448270	162566	2321863
ADVERTISING	345349	240194	241097	232769	229116	7948	1296472
MARKETING	489767	605708	576536	485779	428346	148116	2734252
REAL ESTATE TAXES	25000	15000	15000	15000	15000	15000	100000
INTEREST ON EQUITY/LAND LOAN	408250	123500	0	0	0	0	531750
BANK FEE	250000	220000	225000	230000	235000	240000	1400000
BANK APPRAISAL	25000	5000	5000	5000	5000	5000	50000
BANK ENGINEERING	25000	28000	28000	28000	28000	28000	165000
BANK LEGAL	30000	5000	5000	5000	5000	5000	55000
SUBTOTAL	12052504	14664423	14460143	13873934	13545816	6073490	74670310
CONSTRUCTION INTEREST	621628	855301	830211	783318	753093	266609	4110160
CONTINGENCY	223164	307053	298046	281211	270360	95712	1475547
TOTAL COSTS	12897296	15826777	15588400	14938463	14569270	6435811	80256017

SOURCE: CONSTRUCTION COSTS, R.S. MEANS, 1987.

final phase of the project. Constructional costs are determined to be $0, while the other costs such as, land acquisition real estate taxes, legal fees, etc. were assumed to be constant (similar to those in the original scenario). The total costs accruing to the developer are estimated to be $86,678,578 (Table 4.8).

Revenues accruing from the development (Table 4.9) are estimated to be approximately $111,299,215. In sum, the net return on investment is approximately 28.40% and the present value of the project is estimated at $22474535.

Scenario III

In this scenario, the total number of units on the site were reduced from 600 to 550 units. The units in phase IV were reduced from 170 to 105 units and those in phase V were increased to 100 units. The costs estimated for the project are $80,256,017 (Table 4.10) .

TABLE 4.11

ESTIMATED REVENUES GENERATED
(SCENARIO III)

PHASE	REVENUES
PHASE I	15042000
PHASE II	19126800
PHASE III	24774278
PHASE IV	19942406
PHASE V	22533055
PHASE VI	7514746
TOTAL	108933285

SOURCES: E. PROV., TAX ASSESSOR, 1987;

TABLE 4.12

ESTIMATED PROJECT DEVELOPMENT COSTS
(SCENARIO IV)

	1987 PHASE I 80 UNITS	1988 PHASE II 120 UNITS	1989 PHASE III 118 UNITS	1990 PHASE IV 170 UNITS	1991 PHASE V 85 UNITS	1992 PHASE VI 0 UNITS	TOTAL COSTS
CONSTRUCTION COSTS	6279068	10443233	10482466	10120393	9961546	0	47286706
LAND ACQUISITION	3250000	2050000	1950000	1850000	1750000	1650000	12500000
ARCHITECT	219767	365513	366886	354214	348654	0	1655035
ENGINEERING	200000	10000	10000	10000	10000	0	240000
SURVEY	20000	2000	2000	2000	2000	2000	30000
ACCOUNTING	6279	6266	6289	6072	5977	0	30884
LEGAL	150000	50000	50000	50000	50000	50000	400000
INSURANCE	15070	25064	25158	24289	23908	0	113488
ADMINISTRATIVE	313953	469945	471711	455418	448270	0	2159297
ADVERTISING	345349	240194	241097	232769	229116	0	1288524
MARKETING	489767	605708	576536	485779	428346	0	2586136
REAL ESTATE TAXES	25000	15000	15000	15000	15000	15000	100000
INTEREST ON EQUITY/LAND LOAN	408250	123500	0	0	0	0	531750
BANK FEE	250000	220000	225000	230000	235000	240000	1400000
BANK APPRAISAL	25000	5000	5000	5000	5000	5000	50000
BANK ENGINEERING	25000	28000	28000	28000	28000	28000	165000
BANK LEGAL	30000	5000	5000	5000	5000	5000	55000
SUBTOTAL	12052504	14664423	14460143	13873934	13545816	1995000	70591820
CONSTRUCTION INTEREST	621628	855301	830211	783318	753093	0	3843551
CONTINGENCY	223164	307053	298046	281211	270360	95712	1475547
TOTAL COSTS	12897296	15826777	15588400	14938463	14569270	2090712	75910918

SOURCE: CONSTRUCTION COSTS, R.S. MEANS, 1987.

Revenues accruing from the project total $108,933,285 (Table 4.11). The 35.75% return in this scenario (Table 4.7C), falls slightly below the 37.07% return (Table 4.7A) in the developer's original proposal and is higher than the 28.04% return in scenario II (Table 4.7B). The net present value of the project is determined at $25,339,238.

Scenario IV

This scenario is a combination of scenarios II & III. The total number of units in this alternative are therefore 523, as opposed to the original proposal of 600 units. The total cost estimates for the project are $75,910,918 (Table 4.12) and the revenues are $106,544,024 (Table 4.13). The percent return on the entire project is about 40.35% (Table 4.7D).

TABLE 4.13

ESTIMATED REVENUES GENERATED
(SCENARIO IV)

PHASE	REVENUES
PHASE I	16350000
PHASE II	20790000
PHASE III	26928563
PHASE IV	19942406
PHASE V	22533055
PHASE VI	0
TOTAL	106544024

SOURCES: E. PROV., TAX ASSESSOR, 1987;

Condominiums in Rhode Island -Kettle Point Density Comparison

A request for a reduction in the overall density of

The only development with a density which is comparable to the proposed project at Kettle Point is the Oceanside development in Narragansett. This development has a gross density of 16.2 units per acre. Gross densities in the survey range from this 16.2/acre to as low as .9 units/acre.

Conclusions

The results of the sensitivity analysis show that the percent return on the total investment is not highly sensitive to density reductions. For example, a density reduction of 5% in the second alternative reduced the percent return on investment by a rate of 9%, while a density reduction of about 10% (scenario III) reduced the percent return by only about 2%. The disparity in the results of these alternatives is because of the unit mix determined for the scenarios. The reduction in townhouses in scenario II reduced the return by a larger proportion than in scenario III where a different unit mix was chosen.

The comparison of condominium developments in the State shows that the development at Kettle Point is not only the largest private residential projects recently proposed in the state of Rhode Island, but also one with the highest density of units.

Recommendations

Site Specific

Based upon the above analysis, it can be determined that the City of East Providence has a sound basis for requesting a density reduction in the proposed development at Kettle

Point.

Specifically, scenario II is recommended for the following reasons:

(i) It would preserve the open space of 4.16 acres around the "point";

(ii) Enhance the area around the "point" for the purpose of public recreation and access to the waterfront (public access to this area has been included in the original proposal);

(iii) Reduce the density of units by 5% (thus reducing other negative impacts on traffic, etc.)

(iv) The return on investment from the developer's perspective (35,18%) is only reduced by 5% from the original proposal (37.07%). Therefore the developer would not be deterred by the request in density reduction.

Long-Term

Keeping in mind the fact that this project is one of the first developments of what is projected to be a long succession of waterfront developments in East Providence, the City must look towards developing long range goals to improve and preserve the quality of its waterfront.

To accomplish this, it may be necessary to review in detail the zoning regulations as they apply to waterfront properties which are potential sites for future developments. This would ensure that developments would proceed along certain guidelines pre-determined by the community.

By employing methods such as real estate pro forma analysis, communities can develop public/private partnership ventures that are mutually beneficial.

Possible public benefits include:

* provision or repair of public infrastructure;
* provision of public amenities such as, plazas, etc.;
* dedication of low and moderate income housing;
* provision of jobs or target hiring programs.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

The final section of this research project has three objectives. First, it seeks to summarize the findings of the preceding chapters in terms of the impacts of the Kettle Point (now Arrowhead Point) development on its surrounding environs, and on the community as a whole, as well as recommendations to address the impacts of the development.

The second objective of the final section, is to discuss those issues that arose during our research, as well as other issues that are likely to arise in the future development of East Providence's waterfront. Throughout the plan review process and the meetings between the Transcontinental Development Corporation and the Department of Planning and Urban Development in East Providence, many issues, unforseen, prior to the development of the work program for this project, rose to the forefront of negotiations.

Thirdly, based on the results of the analyses in the preceding chapters, and meetings and discussions with both Transcontinental Development Corporation and the Department of Planning and Urban Development in East Providence, guidelines for future redevelopment along the waterfront are proposed.

It should be borne in mind that these analyses attempt to bracket the probable impacts of the proposed development on the community. Hence, the recommendations which are

discussed in this chapter present a range of impact mitigation measures which can be employed by the City. Although the methodologies employed in this study are considered to be a sound approach for analyzing the impacts of such developments, the results of the analyses have to be considered in context of local conditions and specific characteristics of a development; there is no substitute for professional judgement.

Research Findings

Traffic

In order to determine the effect that the incumbent development would have on the surrounding community, in terms of vehicles added to the existing volumes, a traffic impact analysis was carried out. This analysis first determined, through the collection of primary data in the form of traffic counts, the exciting volume/capacity ratios of the road network surrounding the proposed site. The analysis proceeds to calculate the estimated number of trips which will be generated by the development using two different trip generation multipliers (condominium and Planned Unit Development). The use of two different multipliers allows the authors to bracket the estimated number of trips generated.

The results of the analysis indicate that in both the condominium scenario and the PUD scenario the proposed development will not drastically alter the existing volume/capacity ratios. However, it was also determined that

at the present time, the road network surrounding the site, in many locations, operates at poor levels of service; D, E, and F.

As discussed in Chapter Two, recommendations to address projected traffic conditions in the study area include:

(i) Analyze the feasibility of a second point of access and egress for the complex in order to reduce load on any one location on Veterans Memorial Parkway;

(ii) Conduct a comprehensive analysis of traffic conditions along the East Providence waterfront area;

(iii) Provision of safe public walkways and crosswalks to areas of public access along the waterfront.

Long-term guidelines to mitigate the negative effect of future development along the Parkway include:

(i) Provide improvements to increase the present capacity of the Parkway;

(ii) Work rescheduling for non-residential land uses (staggered work hours);

(iii) Promotion of car pooling, van pooling and pedestrian travel modes;

(iv) Relocation and addition of transit stops and routes to service the waterfront;

(v) Analyze the feasibility of providing a water ferry service connecting East Providence and surrounding waterfront communities to the Providence CBD. This could provide an alternative mode of transportation and thus reduce the load on the existing road network;

Recommendations relating to specific development proposals include:

(i) All development proposals should include a full scale study of traffic conditions around the proposed development site (with an emphasis on identifying locations of potential congestion). Such studies should be conducted at the expense of the developer as part of the permit application process.

Fiscal

In an attempt to measure the magnitude of the fiscal impact of the Kettle Point development on the City of East Providence, two methods of fiscal impact analysis were applied:

(a) The Per Capita Multiplier Method - a linear projection of the costs which will be attributed to an incoming development based on the current per capita costs of public services.

(b) The Service Standard Method - which relies on average employment levels and the relationship of annual operating-to-capital expenditures to estimate the future costs induced by a development.

Although the results of the two analyses differ, several conclusions are drawn:

* There will be an estimated population increase of 1400 to 1660 residents.
* Through the application of both methodologies, the number of school age children added to the school system is

determined within a range (99 to 272). The actual number however is most likely to be closer to 99.

* The City's school system which is close to capacity will be affected due to the increase in school age population.
* After the final phase of construction, it is projected that the development will add in excess of $1 million to the City's tax base.
* The aforementioned revenues are likely to be reduced considerably, in the event that the condominium association ceases to operate.

Recommendations to assist the City in addressing the fiscal impacts of the Kettle Point development as well as future waterfront developments include:

(i) Along with any development proposal, the City should undertake, at the expense of the developer, an impact analysis of the development on the City's existing services and infrastructure. The analysis should be included as a part of the permit application process;

(ii) The City might investigate the use of impact fees and the development of a standard formula or framework necessary for its application. These fees can be placed in the City's general capital improvement fund and used in an infrastructural improvement program;

(iii) Although not applicable in this instance, the Rhode Island Infrastructure Improvement Fund (RIIIF) is made available by the State Department of Economic Development to developments which generate a certain

amount of employment (whose salaries reach or surpass state averages) within the State.

Pro forma

In order to estimate the rate of return on investment by the Transcontinental Development Corporation, on the Kettle Point development, a pro forma analysis was conducted. The analysis was based on pro forma information provided by the Transcontinental Development Corporation. A variety of density alternatives were explored and their sensitivity tested for returns on investment. Also, the density of the proposed development was compared to that of other comparable condominium developments in the State of Rhode Island.

The results of the analysis indicate that:

(i) The percent return on the total investment is not highly sensitive to density reductions.

(ii) The development at Kettle Point is not only the largest private residential development recently proposed in Rhode Island, but also one with the highest density.

Based on the analysis, some recommendations are:

(i) The City can request a 5% density reduction

(ii) More specifically, the City could require that there be no construction at the 4.2 acre "Point" site.

(iii) The City should conduct, at the expense of the developer, an analysis of the economic and financial performance of the development project.

Critical Issues for Future Redevelopment of the East Providence Waterfront

Based on the findings of this research, several issues critical to successful waterfront development in East Providence were raised. These include:

(i) Public access to the waterfront;

(ii) The use of zoning techniques relatively new to the community;

(iii) Subdivision regulations and their use under the PUD overlay district; and

(iv) Public participation in the attainment of community goals related to the development of the local waterfront.

Public Access to the waterfront

Waterfront development is often accompanied by escalating property values, and therefore, increased competition for their use. While private developers may want to maximize their return on investment, public interest groups may want more public access to the waterfront. These objectives may not be compatible and therefore have to be given greater consideration by the City, as development of the waterfront continues.

Waterfront development has a major obligation to meet the public's need for increased recreational opportunities in communities. The City is now in a position where it can provide for the public, an opportunity to enjoy the waterfront. As new projects are developed, access can be

built into the design, or a local permit requirement can be made contingent on provision of public access to the waterfront.

Zoning and Subdivision Regulations

A City agency or a developer with a mixed-use waterfront project proposal is often deterred by an obsolete or restrictive zoning code. The City of East Providence is faced with a similar dilemma, since no revisions to the Zoning Ordinance have been made, to address future waterfront needs. A number of zoning mechanisms could be considered in order to overcome these problems. These include:

(i) Planned Unit Developments

(ii) Overlay Zones

(iii) Mixed-use Developments

A detailed explanation of the definitions and implications of each of these mechanisms has been provided in the guidelines for waterfront development, later in this section.

Public Participation

The involvement of the citizens in the community, especially those who are going to be directly affected by the development, should not be restricted to a reactionary measure. For example, the public participated twice in the review process of the Kettle Point development project. First, for the formal presentation of the project, where a consensus could not be reached on several issues, primarily on traffic generation. As a result a second meeting was

scheduled where the above issues could be discussed.

Some recommendations to ensure public participation in the development of the East Providence waterfront are:

(i) Conduct preliminary surveys to clearly identify and articulate the goals of the general public as they relate to the city's waterfront.

(ii) Ensure public participation during all phases of the development of the comprehensive waterfront plan.

(iii) Include public participation as a part of the subdivision review process.

In the case of East Providence, the City needs not only to analyze the direct and cumulative impacts of every development on its waterfront, but should also include the following issues.

Environmental Issues

The environmental impact of future development on both the community, as well as sensitive coastal resource areas surrounding the community, should be a primary consideration in the formulation of a waterfront development plan. The Rhode Island Coastal Resources Management Council (RICRMC) has direct authority over activities that affect the state's coastal lands and waters. Council permits are required for coastal activities and developments in the coastal area, over and above local and state permits. Another agency that would be involved in this process is the Department of Environmental Management (DEM). In order to analyze

and approve development projects that would be in accordance with the goals of the City as well as the abovementioned agencies, it is of critical importance that these three parties work in close conjunction with each other.

Aesthetic considerations

As the pace of development on the waterfront and the pressures of coping with it increase, the City may not realize the importance of aesthetic considerations of development projects on its waterfront. Usually, aesthetic considerations are developed as a reactionary measure, as the City perceives growing conflicts between the visual quality of individual projects, as well as threats to valued physical traditions. Without design guidelines to direct future development, the City would not be able to ensure that the architectural quality of projects along the waterfront would be visually sensitive and aesthetically compatible. The aesthetic design guidelines should have two main objectives:

(a) Preserve existing architecture that is valued by the community; and

(b) Provide a framework of guidelines to ensure that future development along the waterfront will be sensitive to the aesthetic quality of the City's waterfront.

A number of cities such as San Francisco, Boston and

Baltimore have realized the importance of the physical impacts of development and have provided measures to ensure compatibility in the visual environment of the waterfront.

Some tools that could help the City in achieving these objectives are:

(a) Height and bulk controls for limiting the height and bulk of buildings;

(b) Architectural controls to prevent visual incompatibility between individual projects;

(c) Landscaping requirements;

(d) Public space requirements on the waterfront e.g. plazas, parks, boardwalks;

These design regulations could be incorporated as an element of the design review process. The requirements should be flexible enough to allow visual variety between projects, while not detracting from the overall aesthetic quality of the waterfront.

This research project led to the conclusion that any successful waterfront development plan should be accompanied by detailed development guidelines.

Policy Recommendations for Future Redevelopment of the East Providence Waterfront

There has been an increasing interest in the waterfront area in East Providence for competing economic and non-economic uses. The City has made several efforts in recognizing and attempting to develop the potential of the

waterfront. It adopted the Waterfront Guide Plan in 1983; which analyzed issues and proposed general policy guidelines. Recently, however, the City is looking to develop and adopt a Strategic Waterfront Plan and Implementation Program. The Plan is in accordance with the Coastal Resources Management Program and proposes to conduct an analysis of waterfront sites that are subject to a change in land use, and develop an implementation program that will help to provide mechanisms to regulate development of the waterfront.

This section attempts to formulate guidelines for the Strategic Waterfront Development Plan for the City, based on:

(i) The goals of the City in developing a waterfront plan;

(ii) Issues critical to waterfront development based on the findings of this research project; and

(iii) Other issues identified as being critical to waterfront development.

Goals

The goals of the Strategic Waterfront Plan and Implementation Program are:

(i) "Development of site specific land use criteria to promote proper and consistent utilization of land resources;

(ii) Establish a framework for a long-term development plan, including infrastructure needs to promote a balanced and compatible use of the shoreline;

(iii) Implement regulating mechanisms, through zoning or a

special management district or other method to assure compliance with the City's objectives and policies" (RI Coastal Community Assistance Program Grant Application: Strategic Waterfront Plan and Implementation Program, City of East Providence, January 15, 1987).

The preceding research and analysis recognizes these as valid goals for the development of the City's waterfront.

Objectives

In the light of the preceding research and the aforementioned goals of the City concerning its waterfront, it can be stated that any comprehensive waterfront development plan must focus on the following eight general objectives:

(i) All waterfront development should provide for a variety of compatible land uses that help to realize maximum potential of waterfront resources;

(ii) Commercial development must be required to promote economic growth in the community (e.g. to provide a minimum amount of local employment opportunities);

(iii) Guaranteed, permanent, free public access should be a key objective to any waterfront plan. It is a principle that should be be built into all design considerations;

(iv) Pedestrian routes and spaces along the waterfront must be an integral element of the plan. Also, proposed developments must be analyzed according to their

compatibility with the proposed bike/pathway along the existing railroad right-of-way bordering the City's shoreline;

(v) Public input should be incorporated as an essential element of the plan formulation and plan implementation process;

(vi) Impact analysis of development proposals to ensure that the development will not have a negative impact on the surrounding environment and that it is compatible with the goals and objectives of the City's waterfront plan. The issues to be analyzed would include; traffic, fiscal, economic and social impacts.

(vii) Environmental issues, impacts and concerns should be incorporated into the development process;

(viii) Aesthetic considerations should be a part of the development review process.

Guidelines for the Formulation of the Strategic Waterfront Development Plan

The final section of this paper outlines steps which will help the City of East Providence to achieve the goals and objectives cited above.

Analysis and Inventory of Existing Conditions

The first step in the formulation of a waterfront development plan, is to establish existing conditions, with a specific focus on those properties that are likely to be redeveloped in the future (e.g. abandoned oil tank fields). Other elements to be included in this analysis are:

(i) Demographic analysis (i.e. population, ethnic composition, age, income levels);

(ii) Establishing economic conditions in the area (i.e. land uses basic to the economy, economic diversity, labor force);

(iii) Existing land uses and zoning (i.e. compatibility/non-compatibility with each other and the waterfront in general);

(iv) The City's existing fiscal condition (i.e. tax base, budget-revenue and expenditure, service levels);

(v) Existing traffic conditions with an emphasis on identifying problem areas (i.e. congestion, delay, accidents and parking);

(vi) Volume/capacity analysis of the existing municipal services and educational system;

(vii) Existing environmental conditions;

(viii) Places of historic and archaeological significance;

(ix) Public needs and aspirations concerning the waterfront. This could be identified through a citizen survey.

The inventory of existing conditions would provide a basis on which to formulate policies for the future development of the waterfront. For example, the identification of demographic conditions will help to identify housing needs in the future. Also, the identification of businesses basic to the local economy as well as the size and characteristics of the local labor

force, will help to determine the kinds of land uses to be attracted along the waterfront in the future. Lastly, such a study is necessary to conduct an analysis of the impacts of development proposals on the waterfront.

Rezoning the Waterfront

Presently, there exist no zoning districts or categories that provide for the protection of the waterfront. The City must review and amend its existing zoning and land regulation controls, if it is to effectively manage future development of the waterfront. Through the inventory of existing conditions the City can revise its Land Use Plan and Zoning Controls.

There are several approaches to recognizing the waterfront as a unique area of the City that requires special treatment:

(i) Designating a special waterfront planning area and recognizing it as such in the Master Plan;

(ii) Adopting a waterfront zone as part of the existing zoning ordinance;

(iii) Developing special criteria and performance standards that pertain to waterfronts;

(iv) The use of "overlay" or "floating" zoning which sidesteps the static nature of traditional zoning. These zones "float" over the community and are placed in specific locations when and where they are deemed appropriate by the City. Such a zone may contain regulatory provisions such as, height, and bulk, or it

may have unique features that are translated into the zoning. These zones, however, must be created and implemented properly and cautiously, or they may be in danger of being struck down as being beyond the legal authority of the local government, depending upon the state enabling legislation;

(v) A relatively new legal device to accomodate integrated land uses that is increasingly being employed by local governments (and has also been employed in the Kettle Point Development project) is the Planned Unit Development. Here, subdivision and zoning regulations apply to an entire project area instead of individual lots. Also, because densities are calculated based on the entire project, PUD allows for a variety of development options. The concept therefore provides a means of increasing flexibility in the use of land;

(vi) Mixed-use development offers developers as well as public officials advantages in planning and implementing projects. Some of its advantages are :

(a) It provides an opportunity to combine a variety of land uses in one master-planned unit

(b) It also allows the local government greater control over the nature and location of various project elements.

(c) It allows significant functional and physical integration of design elements and project

components (and thus a highly effective use of land) including uninterrupted pedestrian connections; and development in conformance with a coherent plan.

Waterfront developments are prime candidates for such projects because of the amenities offered by the waterfront and also the variety of activities that can be accommodated. However, it must be borne in mind that there can be negative impacts arising due to the intensity and variety of development along the waterfront. Impact analysis can help the City to forsee and counter such impacts;

(vii) Subdivision regulations in private PUD developments. During the negotiations between the City and Transcontinental Development Corporation, several questions arose as to how closely, the street layout, lighting, curbing, sidewalks, setbacks and other elements of the project ought to follow regular subdivision standards and guidelines used for public streets. The City's policy regarding these elements is definitely a precedent setting process. The City should therefore, set specific guidelines regarding the design and layout of the various components of a project. The actual design and layout can be monitored at different phases of design review.

Development Review Mechanism

Based on the existing conditions of the waterfront, a development review mechanism must be established to ensure

that waterfront development conforms to goals and objectives identified by the City. This mechanism must be applied uniformly to every development proposal. The review process must be flexible enough to be sensitive to the characteristics of each proposal, yet, rigid enough to subject every proposal to a consistent, thorough scrutiny. Thus a streamlined procedure for development proposal review can be established. The various steps in such a process are outlined below:

(i) Formulation of a Handbook of Waterfront Development Requirements that outlines the City's goals, concerns and elements of the review process. Potential developers can thus be informed of the entire planning process, prior to the development of a concept plan;

(ii) Proposal and concept plan review where the developer presents a plan for the development of a specific site to City officials;

(iii) Upon the approval of the concept plan, the developer can draft specific design elements;

(iv) These design elements, along with an analysis of the impacts of the project on the community should be presented to the City;

(v) Contingent upon the size of the development, the City can perform its own impact analysis, or hire a consultant to provide a comparative analysis to that provided by the developer;

(vi) Environmental impacts should be included in the

abovementioned analyses and should involve environmental agencies (i.e. RICRMC and the DEM).

(vii) The design proposal and the results of the impact analysis should be presented to the public and their concerns and opinions about the development should be considered;

(vii) In the instance that the initial meeting fails to resolve community/developer conflicts, subsequent meetings should be scheduled to deal with the specific issues and concerns;

(viii) Once the development is scrutinized for its impacts on the community and the environment, and approved, the project may enter the specific site plan and design development phase;

(ix) The development is assessed for compliance with local site, subdivision, zoning and aesthetic regulations;

(x) In the event of any conflict with local regulations, the developer can negotiate with the City on specific design elements;

(xi) After the approval of the development, the City can allow the development to enter the construction phase;

(xii) During the construction phase, the development will be monitored to ensure that the development is in compliance with regulations; and

(xiii) A post-construction evaluation may help the City to assess the exact impact of the development as well as refine the design review process.

Conclusion

Until recently, East Providence's waterfront was dominated by industrial and port related uses. Meanwhile, the changing economy has led to a decline of these traditional uses. The time has come for the City to evaluate the potential of its waterfront - as a valuable aesthetic and economic resource.

Such a waterfront development plan will no doubt extend over the lives of several generations. Perspective of plan, tenacity of negotiation, an understanding of market evolution and consistency of objectives are qualities that will enable the City to realize its objectives.

As of present time, there are no regulatory or management controls that relate specifically to the waterfront. The City has recognized that this fact could become a major liability for the community. The Strategic Waterfront Plan and Implementation Program will enable the City to review and analyze the assets and liabilities of the waterfront as well as the existing regulating mechanisms for its future development, and provide a workable plan and process to maximize public as well as private interest for future waterfront use.

It is hoped that the analyses, recommendations and issues discussed and the Guidelines for the Strategic Waterfront Development Plan will provide the City of East Providence with information upon which they can make decisions regarding the Kettle Point development project in

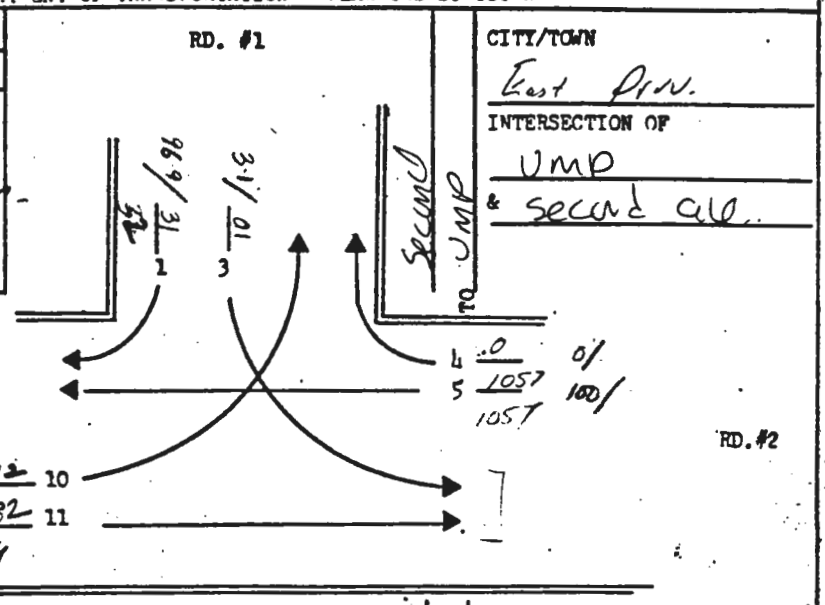
specific, and critical issues regarding the development of the City's waterfront in the future.

APPENDIX A

RHODE ISLAND DEPARTMENT OF TRANSPORTATION - PLANNING DIVISION *

STA. NO. 1
DAY Tuesday
DATE 3/2/4/8/7
WEATHER Clear
TIME 6:00 AM - 9:00 AM
RECORDER Helenb.
SINGLE HOUR
WEATHER CODE
CLEAR OR CLOUDY...C
RAIN....R
SNOW....S
FOG.....F

RD. #1



CITY/TOWN
East Prov.
INTERSECTION OF
UMP
& secand ave.

UMP
to 195

UMP
to Business

8 HR COUNT
MONTHLY
ANNUAL

* OPERATION WITH
THE DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

1573

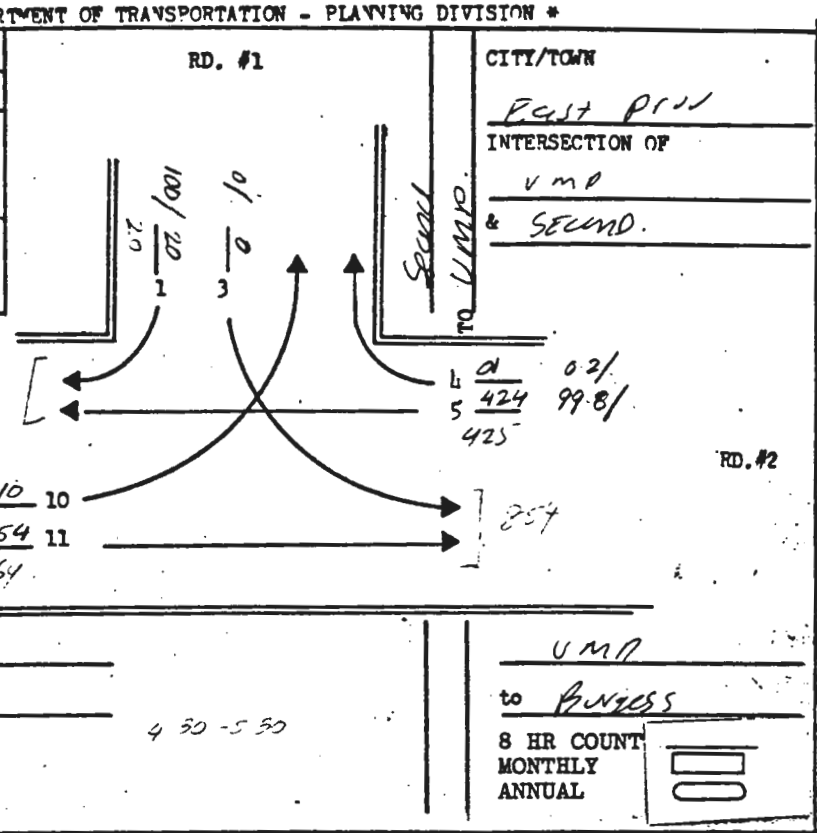
START TIME	END TIME	RD. #1 1	RD. #1 3	RD. #2 4	RD. #2 5	RD. #4 10	RD. #4 11
6:00	6:15	3	0	0	75	2	16
6:15	6:30	1	0	0	129	0	26
6:30	6:45	12	0	0	203	3	59
6:45	7:00	11	0	1	196	1	64
7:00	7:15	11	0	0	171	0	64
7:15	7:30	6	0	0	211	1	71
7:30	7:45	9	0	0	291	0	101
7:45	8:00	9	0	0	303	1	128
8:00	8:15	7	1	0	240	1	159
8:15	8:30	6	0	0	223	Zero	94
8:30	8:45	3	0	0	194	4	80
8:45	9:00	1	0	0	156	0	63
TOTAL							

FORM TCOUNT 11 3/72

RHODE ISLAND DEPARTMENT OF TRANSPORTATION - PLANNING DIVISION *

STA. NO. 1
DAY Tuesday
DATE 3 2 4 8 7
WEATHER C
TIME 3:00 pm - 6:00 pm
RECORDER Holub

WEATHER CODE
CLEAR OR CLOUDY..C
RAIN....R
SNOW....S
FOG.....F



* OPERATION WITH
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

8 HR COUNT
MONTHLY
ANNUAL

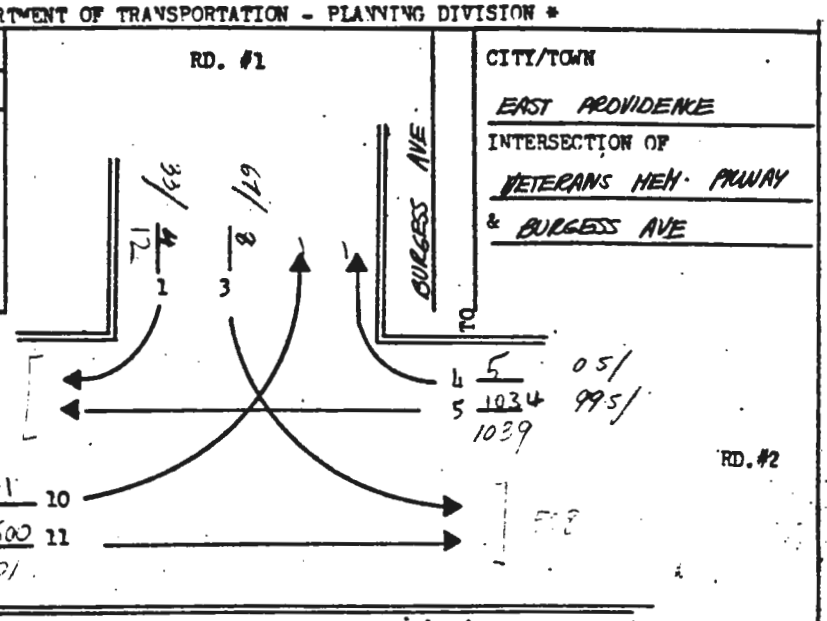
START TIME	END TIME	RD. #1 1	RD. #1 3	RD. #2 4	RD. #2 5	RD. #4 10	RD. #4 11
3.00	315	7	0	0	123	2	132
315	330	4		0	234	3	103
330	345	3		0	146	0	157
345	400	10		1	108	0	237
400	415	8		0	137	1	185
415	430	7		2	84	0	166
430	445	7		0	113	3	196
445	500	2		1	117	2	187
500	515	6		0	100	2	229
515	530	5		0	94	3	242
530	545	10		0	115	2	156
545	600	7	0	0	97	1	109
TOTAL							

FORM TCOUNT 11 3/72

RHODE ISLAND DEPARTMENT OF TRANSPORTATION - PLANNING DIVISION *

STA. NO. 2
DAY TUESDAY
DATE 3 2 4 8 7
WEATHER CLEAR
TIME 6:00 - 9:00 AM
RECORDER AARTI BERSAPPE

WEATHER CODE
CLEAR OR CLOUDY..C
RAIN....R
SNOW....S
FOG.....F



CITY/TOWN
EAST PROVIDENCE
INTERSECTION OF
VETERANS MEM. PKWAY
& BURGESS AVE

VETERANS MEM. PKWAY
to SECOND AVE.

VETERANS MEM. PKWAY
to LYONS AVE.

7:30 - 8:30
1552

8 HR COUNT
MONTHLY
ANNUAL

*I OPERATION WITH
T. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

FORM TCOUNT 11 3/72

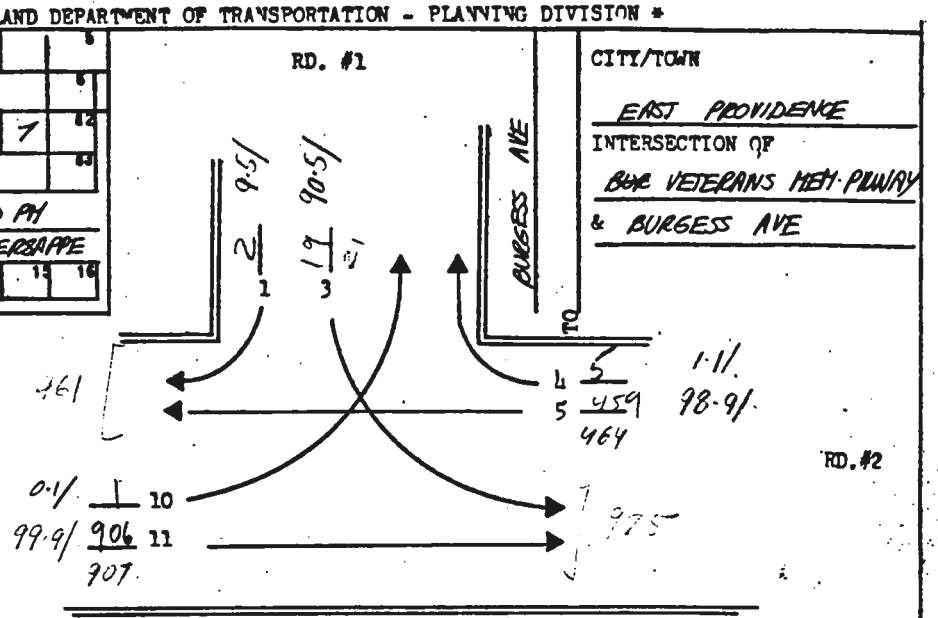
START TIME	END TIME	RD. #1		RD. #2			RD. #4	
		1	3	4	5		10	11
6:00	6:15	0	0	1	90		0	15
6:15	6:30	0	1	1	138		0	32
6:30	6:45	0	2	1	193		0	59
6:45	7:00	0	2	0	182		0	67
7:00	7:15	3	2	1	187		0	67
7:15	7:30	2	1	3	218		0	73
7:30	7:45	2	0	1	272		0	100
7:45	8:00	2	2	2	302		0	154
8:00	8:15	0	2	1	241		0	142
8:15	8:30	0	4	1	219		1	104
8:30	8:45	0	0	0	185		0	68
8:45	9:00	1	1	1	153		0	74
		4	8	5	1034		1	500
TOTAL								

RHODE ISLAND DEPARTMENT OF TRANSPORTATION - PLANNING DIVISION *

STA. NO. 2
DAY TUESDAY
DATE 3 2 4 8 7
WEATHER CLEAR
TIME 3:00 - 6:00 PM
RECORDER AARTI GERSAPPE

WEATHER CODE
CLEAR OR CLOUDY..C
RAIN....R
SNOW....S
FOG.....F

CITY/TOWN
EAST PROVIDENCE
INTERSECTION OF
BUR. VETERANS MEM. PKWAY
& BURGESS AVE



VETERANS MEM. PKWAY
to SECOND AVE

VETERANS MEM. PKWAY
to LYONS AVE

8 HR COUNT
MONTHLY
ANNUAL

4:30 - 5:30

*1 OPERATION WITH
T. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

FORM TCOUNT 11 3/12

START TIME	END TIME	RD. #1 1		RD. #1 3	RD. #2 4	RD. #2 5				RD. #4 10	RD. #4 11	
3:00	3:15	0		2	6	139				0	164	
3:15	3:30	1		1	0	144				0	133	
3:30	3:45	0		3	2	138				0	153	
3:45	4:00	0		0	1	130				0	186	
4:00	4:15	1		0	2	123				0	204	
4:15	4:30	0		5	2	91				0	177	
4:30	4:45	0		6	2	135				1	214	
4:45	5:00	0		5	1	126				0	216	
5:00	5:15	1		4	0	109				0	248	
5:15	5:30	1		4	2	89				0	228	
5:30	5:45	0		1	2	113				0	162	
5:45	6:00	0		2	2	104				2	118	
		2		19	5	459				1	90	
TOTAL												

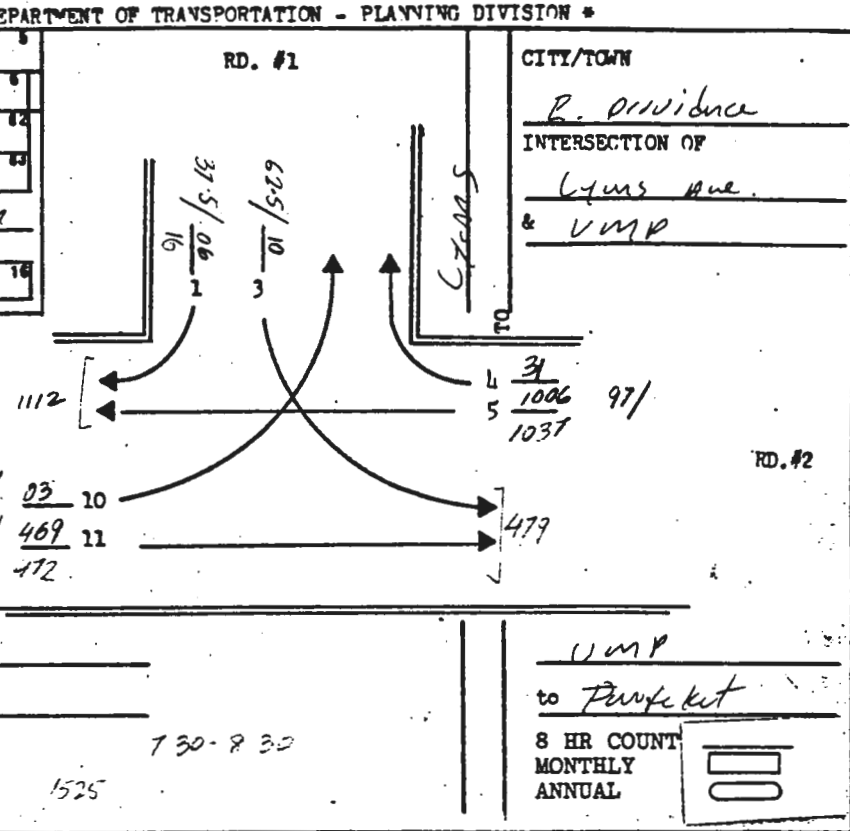
RHODE ISLAND DEPARTMENT OF TRANSPORTATION - PLANNING DIVISION *

STA. NO. 3
DAY Wed
DATE 3 2 5 8 7
WEATHER C
TIME 6:00 Am - 9:00 AM
RECORDER

WEATHER CODE
CLEAR OR CLOUDY..C
RAIN....R
SNOW....S
FOG.....F

RD. #1

CITY/TOWN
Providence
INTERSECTION OF
Lyons Ave.
& VMP



VMP
to 195

VMP
to Pawtucket

7 30 - 8 30

8 HR COUNT
MONTHLY
ANNUAL

* OPERATION WITH
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

1525

FORM TCOUNT 11 3/72

START TIME	END TIME	RD. #1 1 ←	RD. #1 3 →	RD. #2 4 ↑	RD. #2 5 ←	RD. #4 10 ↗	RD. #4 11 →
600	615	0	1	5	96	0	19
615	630	0	3	1	122	0	27
630	645	0	6	5	157	0	61
645	700	0	4	5	227	2	82
700	715	1	1	2	164	1	53
715	730	1	3	7	238	0	82
730	745	2	3	13	276	2	75
745	800	1	1	4	271	0	118
8:00	815	1	4	3	227	0	156
815	830	2	2	119	232	1	120
830	845	2	3	3	179	4	75
845	900	2	3	1	176	1	54
TOTAL							

RHODE ISLAND DEPARTMENT OF TRANSPORTATION - PLANNING DIVISION *

STA. NO. 3

DAY Wed

DATE 3/25/87

WEATHER C

TIME 3:00 pm - 6:00 pm

RECORDER

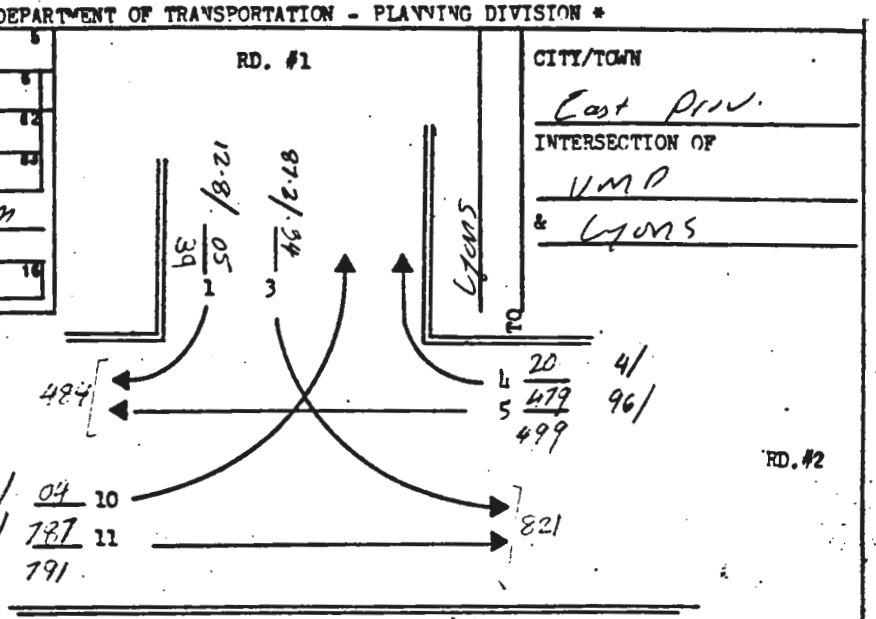
WEATHER CODE

CLEAR OR CLOUDY..C

RAIN....R

SNOW....S

FOG.....F



*1 OPERATION WITH
U. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

FORM TCOUNT 11 3/12

START TIME	END TIME	RD. #1 1	RD. #1 3	RD. #2 4	RD. #2 5	RD. #4 10	RD. #4 11
300	315	1	7	4	140	2	126
315	330	0	3	2	111	0	134
330	345	1	6	6	164	2	136
345	400	1	4	5	89	3	147
400	415	3	7	4	142	0	151
415	430	3	6	6	112	1	146
430	445	0	9	9	161	1	191
445	500	1	7	6	117	2	185
500	515	3	7	4	99	1	218
515	530	1	11	1	102	0	193
520	545	1	5	8	110	1	183
545	600	1	2	4	93	0	221
TOTAL							

RHODE ISLAND DEPARTMENT OF TRANSPORTATION - PLANNING DIVISION *

STA. NO. 4

DAY WEDNESDAY

DATE 3 25 87

WEATHER CLEAR

TIME 6:00 - 9:00 AM

RECORDER AARTI GERSAPPE

WEATHER CODE

CLEAR OR CLOUDY..C

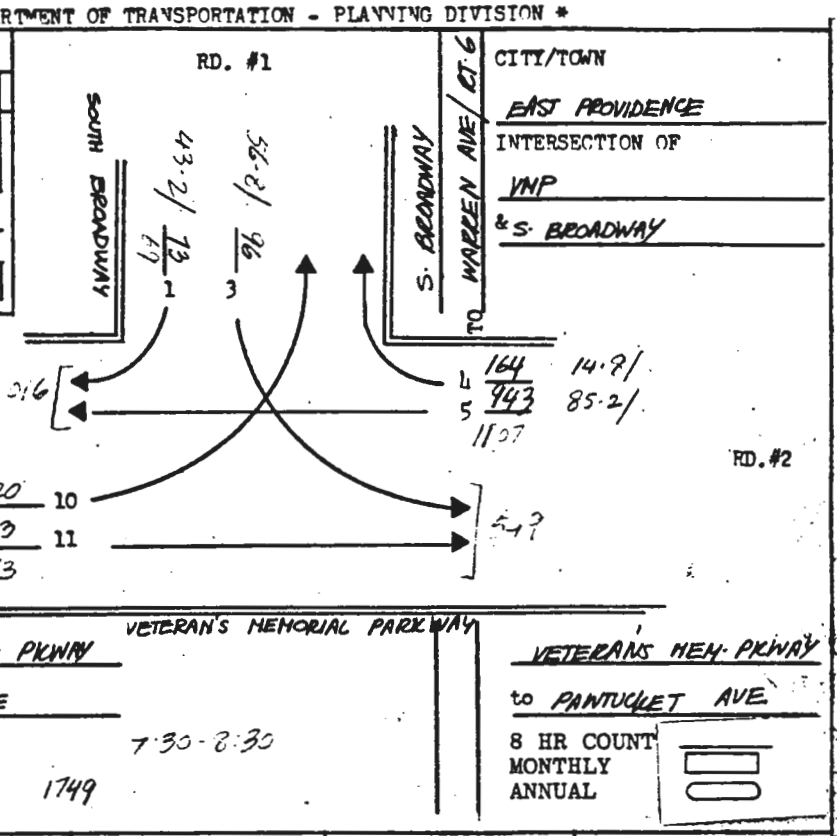
RAIN....R

SNOW....S

FOG.....F

CITY/TOWN EAST PROVIDENCE

INTERSECTION OF VNP & S. BROADWAY



VETERANS MEM. PKWAY to LYONS AVENUE

VETERANS MEM. PKWAY to PAWTUCKET AVE.

7:30 - 8:30

1749

8 HR COUNT
MONTHLY
ANNUAL

*IN COOPERATION WITH THE DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

START TIME	END TIME	RD. #1 1		RD. #1 3	RD. #2 4	RD. #2 5				RD. #4 10	RD. #4 11	
18 23	24 29	33 36		41 44	45 48	49 52				69 72	73 76	
6:00	6:15	6		4	12	101				1	17	
6:15	6:30	7		11	19	114				0	27	
6:30	6:45	11		30	22	154				0	66	
6:45	7:00	11		31	28	207				5	65	
7:00	7:15	15		12	32	189				8	51	
7:15	7:30	21		12	49	207				3	72	
7:30	7:45	22		15	51	278				4	80	
7:45	8:00	13		24	38	248				6	113	
8:00	8:15	20		31	33	212				3	152	
8:15	8:30	18		26	42	205				7	108	
8:30	8:45	10		17	45	179				5	75	
8:45	9:00	6		25	38	174				6	54	
TOTAL												

FORM TCOUNT 11 3/72

RHODE ISLAND DEPARTMENT OF TRANSPORTATION - PLANNING DIVISION *

STA. NO. 4

DAY WEDNESDAY

DATE 3 2 5 8 7

WEATHER CLEAR

TIME 3:00 - 6:00 PM

RECORDER AARTI GERSAPPE

WEATHER CODE

CLEAR OR CLOUDY..C

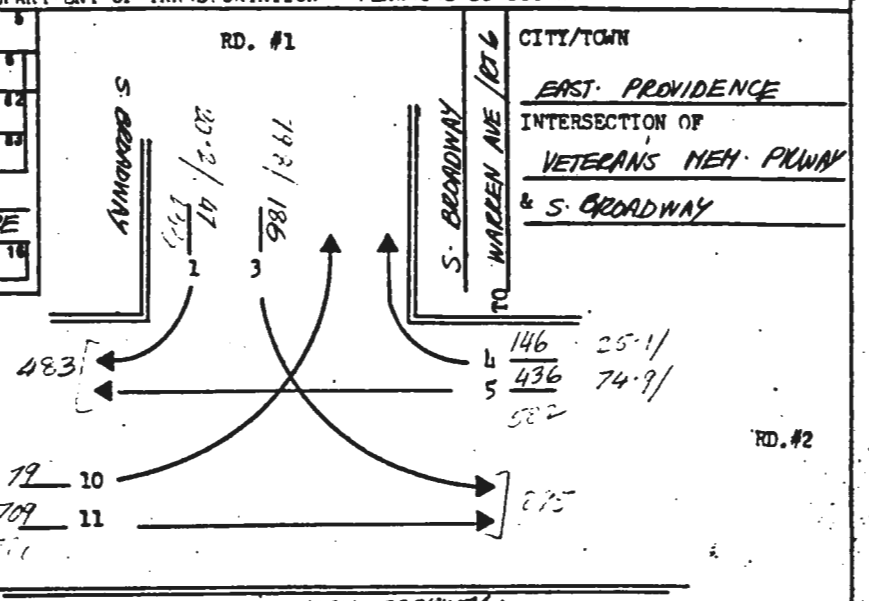
RAIN....R

SNOW....S

FOG.....F

CITY/TOWN EAST PROVIDENCE

INTERSECTION OF VETERANS MEM PKWAY & S BROADWAY



VETERANS MEM PKWY to LYONS AVE

VETERANS MEM PARKWAY 4:30-5:30

VETERANS MEM PKWY to PAWTUCKET AVE

8 HR COUNT
MONTHLY
ANNUAL

*1 OPERATION WITH
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

FORM TCOUNT 11 3/72

START TIME	END TIME	RD. #1		RD. #1	RD. #2	RD. #2				RD. #4	RD. #4	
		1		3	4	5				10	11	
18 23	24 29	33 36		41 44	45 48	49 52				69 72	73 76	
3:00	3:15	8		38	33	122				7	123	
3:15	3:30	9		49	32	113				14	132	
3:30	3:45	7		36	46	140				12	126	
3:45	4:00	7		27	37	231				14	135	
4:00	4:15	14		46	41	131				16	141	
4:15	4:30	8		42	42 33	90				16	137	
4:30	4:45	15		57	37 42	140				22	156	
4:45	5:00	13		29	40 37	97				18	178	
5:00	5:15	10		50	29 40	96				28	199	
5:15	5:30	9		50	34 27	103				11	176	
5:30	5:45	14		29	34	94				16	162	
5:45	6:00	8		39	27	80				9	195	
TOTAL												

RHODE ISLAND DEPARTMENT OF TRANSPORTATION - PLANNING DIVISION *

STA. NO. 51

DAY TUESDAY

DATE 3/31/87

WEATHER RAIN

TIME 6:00 - 9:00AM

RECORDER

WEATHER CODE

CLEAR OR CLOUDY..c

RAIN....r

SNOW....s

FOG.....f

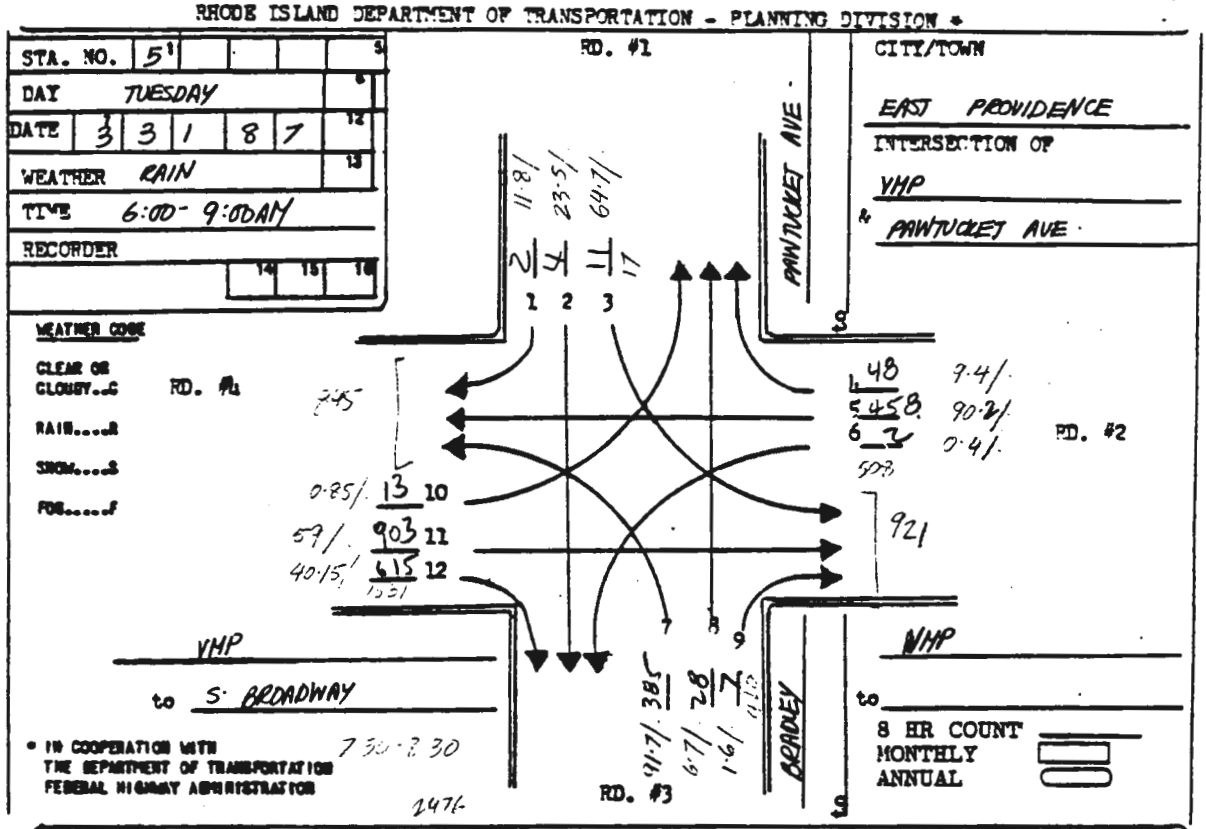
CITY/TOWN

EAST PROVIDENCE

INTERSECTION OF

VMP

& PAWTUCKET AVE



* IN COOPERATION WITH THE DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

7:30 - 8:30

FORM TCOUNT 8/12

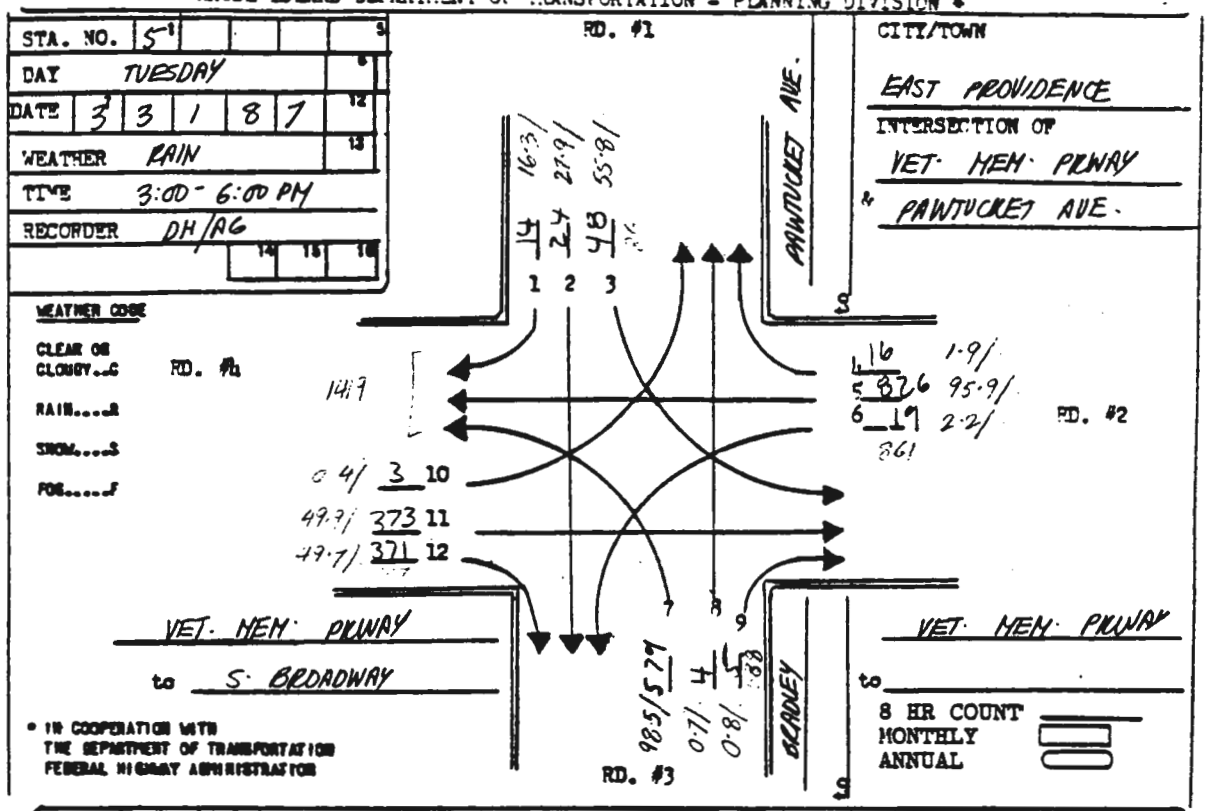
START TIME	END TIME	RD. #1			RD. #2			RD. #3			RD. #4		
		1	2	3	4	5	6	7	8	9	10	11	12
6:00	6:15	0	0	0	2	14	1	17	0	5	0	88	45
6:15	6:30	0	0	0	1	37	2	31	0	2	3	126	63
6:30	6:45	0	0	0	1	89	0	70	3	5	6	203	113
6:45	7:00	0	0	2	11	69	0	64	7	1	3	154	120
7:00	7:15	1	2	3	4	58	1	62	1	2	3	220	186
7:15	7:30	0	0	2	4	56	2	63	1	0	0	219	157
7:30	7:45	1	0	3	10	75	0	80	6	3	2	306	193
7:45	8:00	0	1	2	16	125	0	97	10	0	1	210	168
8:00	8:15	0	3	5	15	142	2	119	5	2	4	189	134
8:15	8:30	1	0	1	7	116	0	89	1	2	6	198	120
8:30	8:45	3	3	4	26	83	0	65	8	4	4	240	170
8:45	9:00	0	3	4	13	58	2	82	7	3	2	115	102
		2	4	11	48	458	7	385	28	7	13	903	615
TOTAL													

RHODE ISLAND DEPARTMENT OF TRANSPORTATION - PLANNING DIVISION *

STA. NO. 5[1]
DAY TUESDAY
DATE 3/31/87
WEATHER RAIN
TIME 3:00 - 6:00 PM
RECORDER DH/AG

CITY/TOWN
EAST PROVIDENCE
INTERSECTION OF
VET. MEM. PKWAY
& PAWTUCKET AVE.

WEATHER CODE
CLEAR OR CLOUDY..C
RAIN....R
SNOW....S
FOG.....F

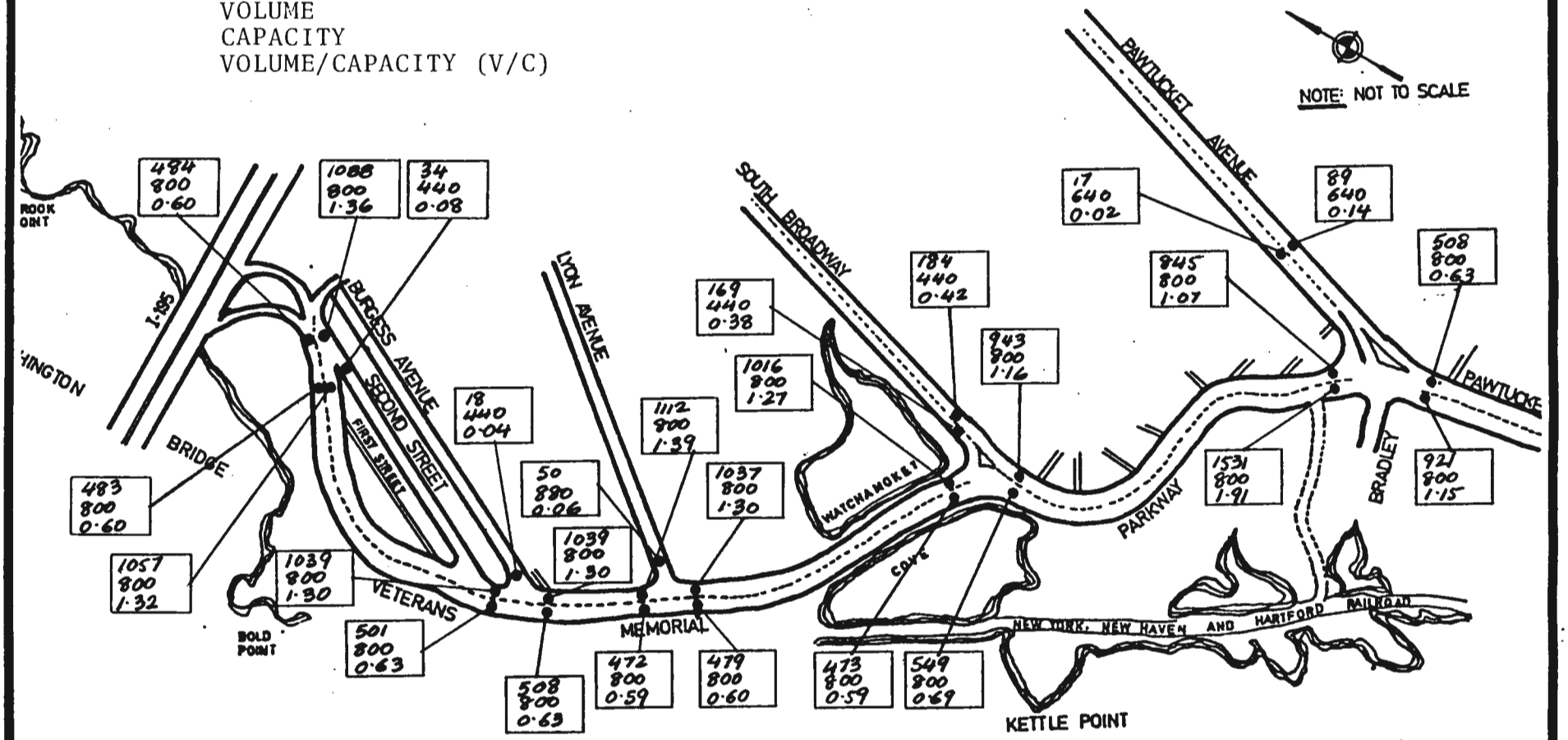


* IN COOPERATION WITH THE DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

START TIME	END TIME	RD. #1			RD. #2			RD. #3			RD. #4		
		1	2	3	4	5	6	7	8	9	10	11	12
18 23	24 28	33 36	37 40	41 44	45 48	49 52	53 56	57 60	61 64	65 68	69 72	73 76	77 80
3:00	3:15	3	5	12	2	131	1	96	1	0	3	132	116
3:15	3:30	0	5	9	3	129	0	131	1	1	0	90	86
3:30	3:45	4	3	6	4	177	1	127	0	0	0	164	156
3:45	4:00	1	0	4	3	166	1	137	3	2	2	110	87
4:00	4:15	2	4	16	4	191	2	126	1	0	2	110	91
4:15	4:30	1	7	18	1	199	3	133	1	1	1	63	74
4:30	4:45	6	7	11	8	224	5	148	2	2	0	118	135
4:45	5:00	2	6	8	3	201	3	128	0	1	2	83	75
5:00	5:15	2	7	21	5	182	3	164	0	2	1	86	87
5:15	5:30	4	4	8	0	219	8	139	2	0	0	86	74
5:30	5:45	1	2	6	1	183	5	105	3	1	0	134	99
5:45	6:00	0	0	3	1	99	4	86	0	2	1	86	86
		14	24	48	16	826	19	579	4	5	3	373	371
TOTAL													

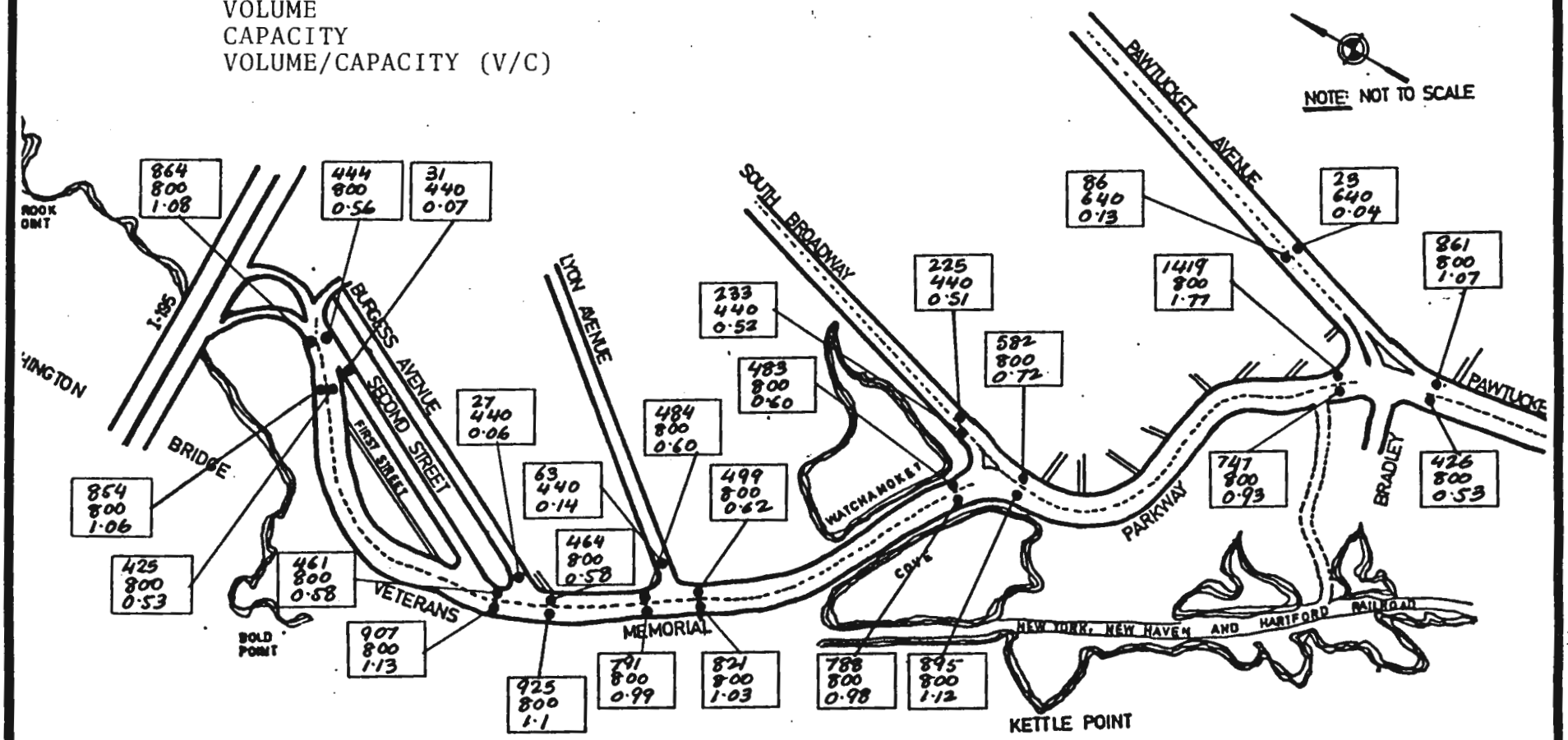
FORM TCOUNT 8/12

AM EXISTING V/C ANALYSIS
VOLUME
CAPACITY
VOLUME/CAPACITY (V/C)



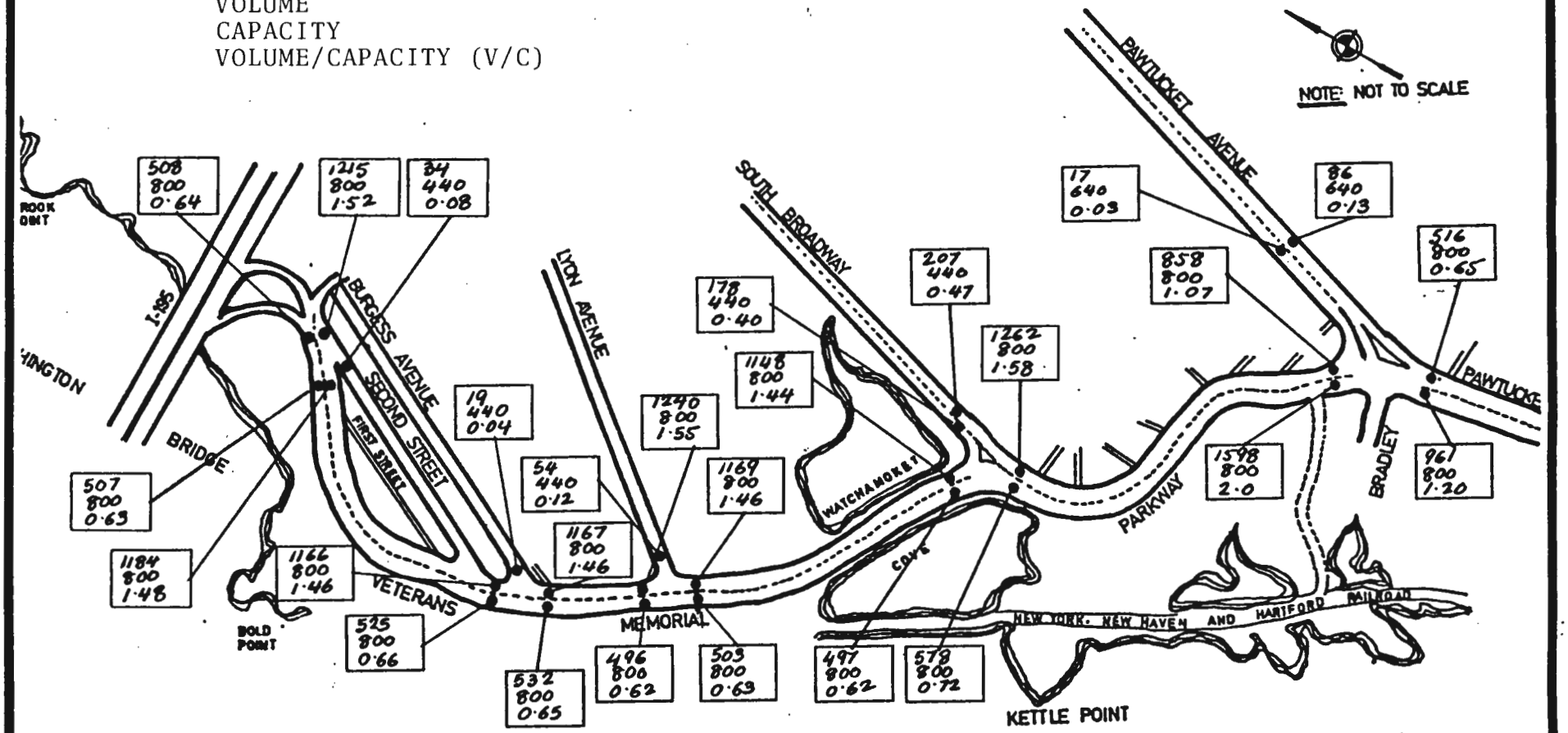
CPAD, URI	KETTLE POINT RESIDENTIAL DEVELOPMENT TRAFFIC IMPACT ANALYSIS	APPENDIX A FIGURE

PM EXISTING V/C ANALYSIS
VOLUME
CAPACITY
VOLUME/CAPACITY (V/C)



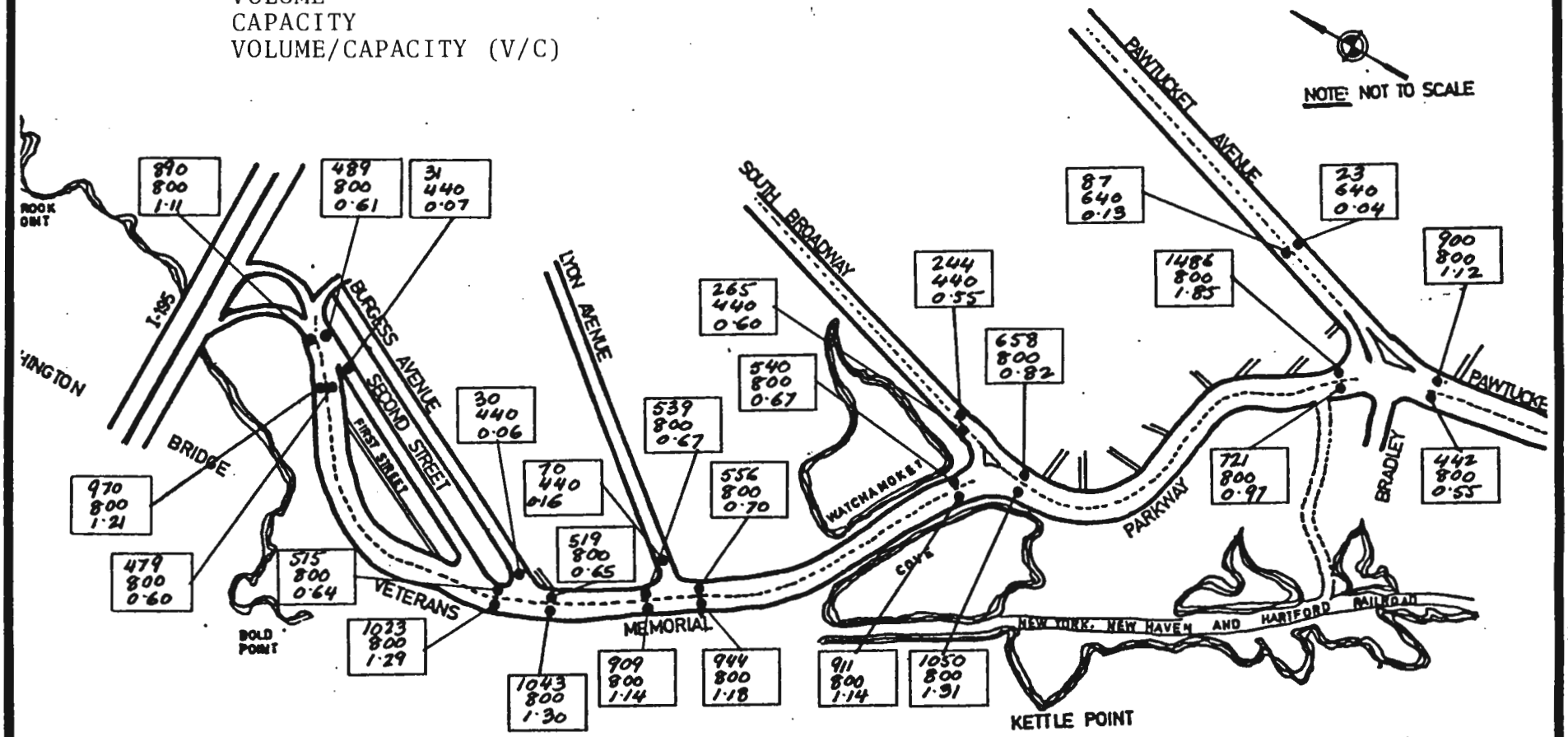
CPAD, URI	KETTLE POINT RESIDENTIAL DEVELOPMENT TRAFFIC IMPACT ANALYSIS	APPENDIX A FIGURE

AM V/C ANALYSIS: CONDOMINIUM SCENARIO
VOLUME
CAPACITY
VOLUME/CAPACITY (V/C)

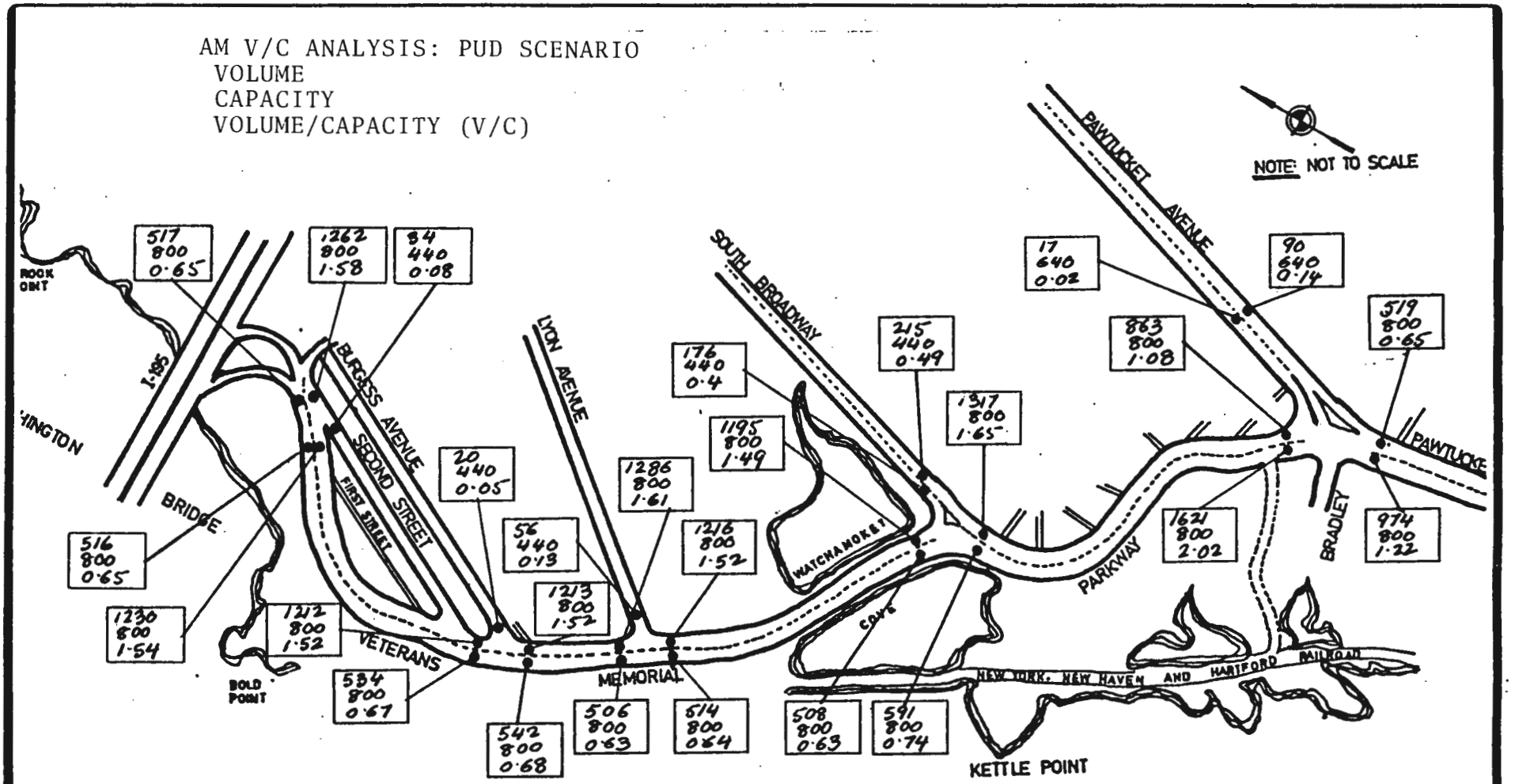


CPAD, URI	KETTLE POINT RESIDENTIAL DEVELOPMENT TRAFFIC IMPACT ANALYSIS	APPENDIX A A FIGURE

PM V/C ANALYSIS: CONDOMINIUM SCENARIO
VOLUME
CAPACITY
VOLUME/CAPACITY (V/C)

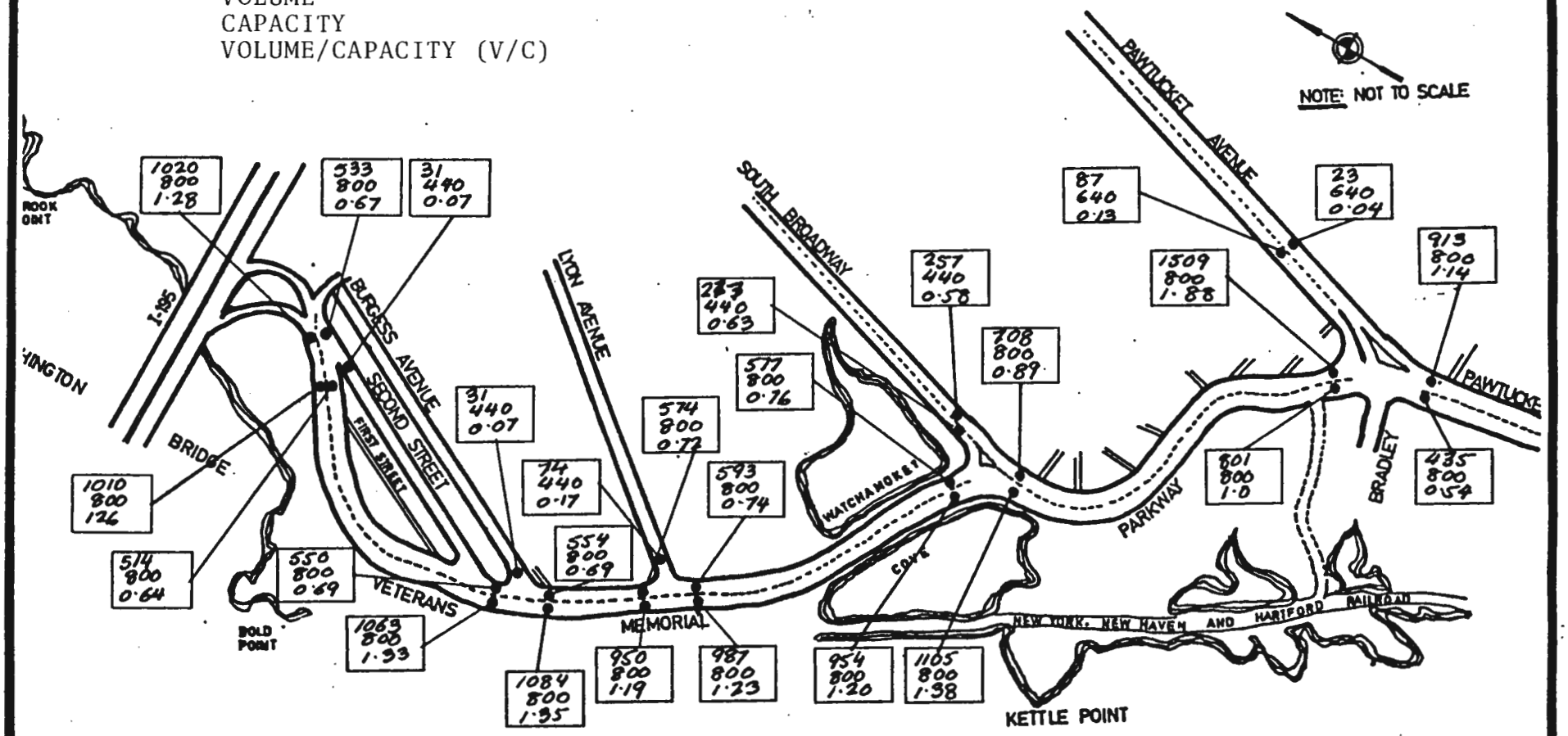


CPAD, URI	KETTLE POINT RESIDENTIAL DEVELOPMENT TRAFFIC IMPACT ANALYSIS	APPENDIX A FIGURE



CPAD, URI	KETTLE POINT RESIDENTIAL DEVELOPMENT TRAFFIC IMPACT ANALYSIS	APPENDIX A FIGURE

PM V/C ANALYSIS: PUD SCENARIO
VOLUME
CAPACITY
VOLUME/CAPACITY (V/C)



CPAD, URI	KETTLE POINT RESIDENTIAL DEVELOPMENT TRAFFIC IMPACT ANALYSIS	APPENDIX A FIGURE

APPENDIX

LEVEL OF SERVICE (QUALITY OF TRAFFIC OPERATION)

LEVEL OF SERVICE	QUALITY OF TRAFFIC OPERATION
A	FREE FLOW, MINIMAL DELAY DUE TO RANDOM ARRIVAL DURING RED TRAFFIC SIGNAL INDICATION
B	QUEUES DEVELOP OCCASIONALLY THAT MAY NOT BE DELIVERED DURING THE FIRST GREEN LIGHT INDICATION (I.E., WAIT THROUGH A RED LIGHT)
C	STABLE FLOW (TYPICAL DESIGN LEVEL); APPROXIMATELY 30 PERCENT OF THE GREEN INDICATIONS FAIL TO DELIVER QUEUES FORMING. BACKUPS MAY DEVELOP BEHIND TURNING VEHICLES
D	APPROACHING STABLE FLOW; APPROXIMATELY 70 PERCENT OF THE GREEN INDICATIONS FAIL TO DELIVER WAITING QUEUES. DELAY MAY BE SUBSRTANTIAL (WAITING THROUGH TWOO CYCLES OF TRAFFIC SIGNAL), BUT THE QUEUES OCCASIONALLY CLEAR DURING PEAK HOUR.
E	UNSTABLE FLOW, ROADWAY IS OPERATING AT CAPACITY WITH LONG QUEUES THE ENTIRE PEAK HOUR.
F	FORCED FLOW, JAMMED INTERSECTION, LOMG DELAYS ARE EXPECTED WITH DRIVERS HAVING TO WAIT THROUGH MORE THAN TWO CYCLES OF THE TRAFFIC SIGNAL.

SOURCE: HIGHWAY RESEARCH BOARD, NATIONAL ACADEMY OF SCIENCES - NATIONAL RESEARCH COUNCIL, HIGHWAY CAPACITY MANUAL, 1965 (WASHINGTON D.C.: HIGHWAY RESEARCH BOARD, DIVISION OF ENGINEERING AND INDUSTRIAL RESEARCH, 1965), 80, 81, 131.

APPENDIX B

TABLE 1A

PER CAPITA MULTIPLIER METHOD (PHASE I)
POPULATION & STUDENTS GENERATED

600 UNIT PLANNED UNIT RESIDENTIAL DEVELOPMENT	# OF UNITS	DEMOGRAPHIC MULTIPLIERS HOUSEHOLD	STUDENTS	TOTAL RESIDENTS	STUDENTS
GARDEN APARTMENTS					
STUDIO	0	1.071	0.000	0	0
1 BEDROOM	7	1.500	0.038	11	0
2 BEDROOM	30	2.430	0.150	73	4
TOWN HOUSES					
2 BEDROOM	52	2.200	0.000	114	0
3 BEDROOM	11	4.073	1.331	45	12
TOTAL	100	-	-	243	16

TABLE 1B

PER CAPITA MULTIPLIER METHOD (PHASE I-II)
POPULATION & STUDENTS GENERATED

600 UNIT PLANNED UNIT RESIDENTIAL DEVELOPMENT	# OF UNITS	DEMOGRAPHIC MULTIPLIERS HOUSEHOLD	STUDENTS	TOTAL RESIDENTS	STUDENTS
GARDEN APARTMENTS					
STUDIO	3	1.071	0.000	3	0
1 BEDROOM	30	1.500	0.038	45	1
2 BEDROOM	94	2.430	0.150	228	12
TOWN HOUSES					
2 BEDROOM	57	2.200	0.000	125	0
3 BEDROOM	16	4.073	1.331	65	18
TOTAL	200	-	-	467	31

TABLE 1C

PER CAPITA MULTIPLIER METHOD (PHASE I-III)
POPULATION & STUDENTS GENERATED

600 UNIT PLANNED UNIT RESIDENTIAL DEVELOPMENT	# OF UNITS	DEMOGRAPHIC MULTIPLIERS		TOTAL	
		HOUSEHOLD	STUDENTS	RESIDENTS	STUDENTS
GARDEN APARTMENTS					
STUDIO	3	1.071	0.000	3	0
1 BEDROOM	37	1.500	0.038	56	1
2 BEDROOM	124	2.430	0.150	301	16
TOWN HOUSES					
2 BEDROOM	109	2.200	0.000	240	0
3 BEDROOM	27	4.073	1.331	110	31
TOTAL	300	-	-	710	48

TABLE 1D

PER CAPITA MULTIPLIER METHOD (PHASE I-IV)
POPULATION & STUDENTS GENERATED

600 UNIT PLANNED UNIT RESIDENTIAL DEVELOPMENT	# OF UNITS	DEMOGRAPHIC MULTIPLIERS		TOTAL	
		HOUSEHOLD	STUDENTS	RESIDENTS	STUDENTS
GARDEN APARTMENTS					
STUDIO	3	1.071	0.000	3	0
1 BEDROOM	44	1.500	0.038	66	1
2 BEDROOM	154	2.430	0.150	374	20
TOWN HOUSES					
2 BEDROOM	161	2.200	0.000	354	0
3 BEDROOM	38	4.073	1.331	155	43
TOTAL	400	-	-	952	64

TABLE 1E

PER CAPITA MULTIPLIER METHOD (PHASE I-V)
POPULATION & STUDENTS GENERATED

600 UNIT PLANNED UNIT RESIDENTIAL DEVELOPMENT	# OF UNITS	DEMOGRAPHIC MULTIPLIERS HOUSEHOLD	STUDENTS	TOTAL RESIDENTS	STUDENTS
GARDEN APARTMENTS					
STUDIO	6	1.071	0.000	6	0
1 BEDROOM	67	1.500	0.038	101	2
2 BEDROOM	218	2.430	0.150	530	28
TOWN HOUSES					
2 BEDROOM	166	2.200	0.000	365	0
3 BEDROOM	43	4.073	1.331	175	49
TOTAL	500	-	-	1177	79

TABLE 1F

PER CAPITA MULTIPLIER METHOD (PHASE I-VI)
POPULATION & STUDENTS GENERATED

600 UNIT PLANNED UNIT RESIDENTIAL DEVELOPMENT	# OF UNITS	DEMOGRAPHIC MULTIPLIERS HOUSEHOLD	STUDENTS	TOTAL RESIDENTS	STUDENTS
GARDEN APARTMENTS					
STUDIO	12	1.071	0.000	13	0
1 BEDROOM	86	1.500	0.038	129	3
2 BEDROOM	282	2.430	0.150	685	36
TOWN HOUSES					
2 BEDROOM	172	2.200	0.000	378	0
3 BEDROOM	48	4.073	1.331	196	54
TOTAL	600	-	-	1401	93

SOURCES: TRANSCONTINENTAL DEVELOPMENT CORPORATION, MARCH, 1987;
R. BURCHELL & D. LISTOKIN, 1983.

APPENDIX C

TABLE 1A

TOTAL REVENUES GENERATED (PHASE I)

UNIT TYPE	PRICE/ EACH UNIT	TOTAL # UNITS	TOTAL REVENUES/ UNIT TYPE
MIDRISE			
STUDIO	100000.00	0	0.00
ONE BEDROOM	150000.00	0	0.00
TWO BEDROOM	175000.00	0	0.00
TOWNHOUSES			
TWO BEDROOM	225000.00	23	5175000.00
THREE BEDROOM	250000.00	0	0.00
TERRACE			
ONE BEDROOM	175000.00	9	1575000.00
TWO BEDROOM	200000.00	48	9600000.00
TOTAL NUMBER OF UNITS.....		80	
TOTAL REVENUES GENERATED.....			16350000.00
VACANCY RATE			8.00%
TOT.NO.OF OCCUPIED UNITS			73.6
ACTUAL REVENUES GENERATED			15042000.00

SOURCES: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987;
EAST PROVIDENCE, TAX ASSESSOR, 1987.

TABLE 18

TOTAL REVENUES GENERATED (PHASE II)

UNIT TYPE	PRICE/ EACH UNIT	TOTAL # UNITS	TOTAL REVENUES/ UNIT TYPE
MIDRISE			
STUDIO	100000.00	6	600000.00
ONE BEDROOM	150000.00	30	4500000.00
TWO BEDROOM	175000.00	84	14700000.00
TOWNHOUSES			
TWO BEDROOM	225000.00	0	0.00
THREE BEDROOM	250000.00	0	0.00
TERRACE			
ONE BEDROOM	175000.00	0	0.00
TWO BEDROOM	200000.00	0	0.00
TOTAL NUMBER OF UNITS.....		120	
TOTAL REVENUES GENERATED.....			19800000.00
VACANCY RATE			8.00%
TOT.NO.OF OCCUPIED UNITS			110.4
REVENUES GENERATED			18216000.00
INFLATION			0.05
ACTUAL REVENUES GENERATED			19126800.00

SOURCES: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987;
EAST PROVIDENCE, TAX ASSESSOR, 1987.

TABLE 1C

TOTAL REVENUES GENERATED (PHASE III)

UNIT TYPE	PRICE/ EACH UNIT	TOTAL # UNITS	TOTAL REVENUES/ UNIT TYPE
MIDRISE			
STUDIO	100000.00	0	0.00
ONE BEDROOM	150000.00	0	0.00
TWO BEDROOM	175000.00	0	0.00
TOWNHOUSES			
TWO BEDROOM	225000.00	40	9000000.00
THREE BEDROOM	250000.00	0	0.00
TERRACE			
ONE BEDROOM	175000.00	7	1225000.00
TWO BEDROOM	200000.00	71	14200000.00
TOTAL NUMBER OF UNITS.....		118	
TOTAL REVENUES GENERATED.....			24425000.00
VACANCY RATE			8.00%
TOT.NO.OF OCCUPIED UNITS			108.56
REVENUES GENERATED			22471000.00
INFLATION			0.05
ACTUAL REVENUES GENERATED			24774277.50

SOURCES: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987;
EAST PROVIDENCE, TAX ASSESSOR, 1987.

TABLE 1D

TOTAL REVENUES GENERATED (PHASE IV)

UNIT TYPE	PRICE/ EACH UNIT	TOTAL # UNITS	TOTAL REVENUES/ UNIT TYPE
MIDRISE			
STUDIO	100000.00	6	600000.00
ONE BEDROOM	150000.00	30	4500000.00
TWO BEDROOM	175000.00	84	14700000.00
TOWNHOUSES			
TWO BEDROOM	225000.00	0	0.00
THREE BEDROOM	250000.00	17	4250000.00
TERRACE			
ONE BEDROOM	175000.00	3	525000.00
TWO BEDROOM	200000.00	30	6000000.00
TOTAL NUMBER OF UNITS.....		170	
TOTAL REVENUES GENERATED.....			30575000.00
VACANCY RATE			8.00%
TOT.NO.OF OCCUPIED UNITS			156.4
REVENUES GENERATED			28129000.00
INFLATION			0.05
ACTUAL REVENUES GENERATED			32562833.63

SOURCES: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987;
EAST PROVIDENCE, TAX ASSESSOR, 1987.

TABLE 1E

TOTAL REVENUES GENERATED (PHASE V)

UNIT TYPE	PRICE/ EACH UNIT	TOTAL # UNITS	TOTAL REVENUES/ UNIT TYPE
MIDRISE			
STUDIO	100000.00	0	0.00
ONE BEDROOM	150000.00	0	0.00
TWO BEDROOM	175000.00	0	0.00
TOWNHOUSES			
TWO BEDROOM	225000.00	23	5175000.00
THREE BEDROOM	250000.00	5	1250000.00
TERRACE			
ONE BEDROOM	175000.00	5	875000.00
TWO BEDROOM	200000.00	52	10400000.00
TOTAL NUMBER OF UNITS.....		85	
TOTAL REVENUES GENERATED.....			17700000.00
VACANCY RATE			8.00%
TOT.NO.OF OCCUPIED UNITS			78.2
REVENUES GENERATED			16284000.00
INFLATION			0.05
ACTUAL REVENUES GENERATED			19793303.78

SOURCES: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987;
EAST PROVIDENCE, TAX ASSESSOR, 1987.

TABLE 1F

TOTAL REVENUES GENERATED (PHASE VI)

UNIT TYPE	PRICE/ EACH UNIT	TOTAL # UNITS	TOTAL REVENUES/ UNIT TYPE
MIDRISE			
STUDIO	100000.00	0	0.00
ONE BEDROOM	150000.00	0	0.00
TWO BEDROOM	175000.00	0	0.00
TOWNHOUSES			
TWO BEDROOM	225000.00	14	3150000.00
THREE BEDROOM	250000.00	13	3250000.00
TERRACE			
ONE BEDROOM	175000.00	0	0.00
TWO BEDROOM	200000.00	0	0.00
TOTAL NUMBER OF UNITS.....		27	
TOTAL REVENUES GENERATED.....			6400000.00
VACANCY RATE			8.00%
TOT.NO.OF OCCUPIED UNITS			24.84
REVENUES GENERATED			5888000.00
INFLATION			0.05
ACTUAL REVENUES GENERATED			7514745.84

TOTAL REVENUES GENERATED BY THE PROJECT = 118813960.74

SOURCES: TRANSCONTINENTAL DEVELOPMENT CORPORATION, 1987;
EAST PROVIDENCE, TAX ASSESSOR, 1987.

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