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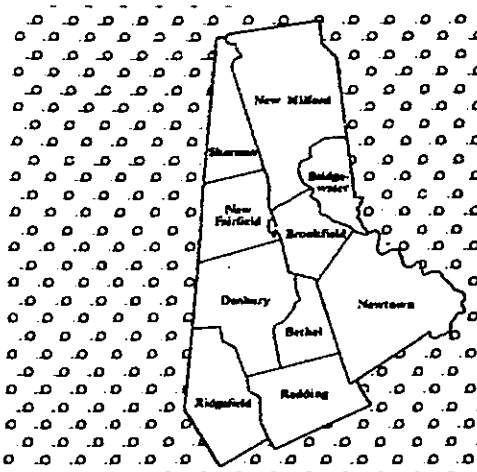

REGIONAL PLANNING BULLETIN

No. 94 Housatonic Valley Council of Elected Officials July 1997

12/28/2016
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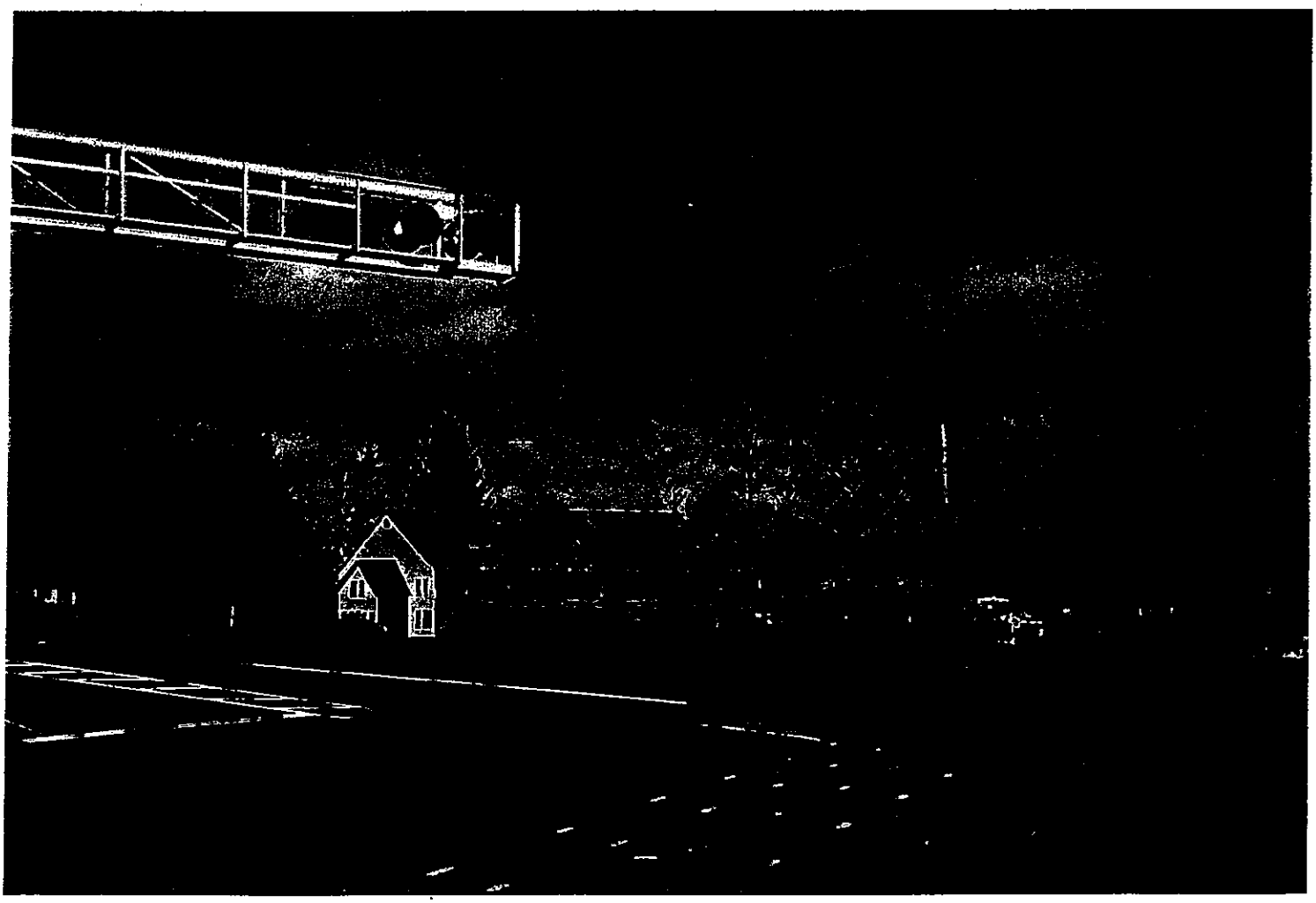
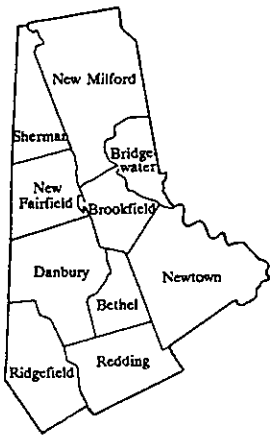
Interstate 84 Exit 9 Hawleyville Transportation and Development Study





HOUSATONIC VALLEY
COUNCIL OF ELECTED OFFICIALS

Old Town Hall, Rts. 25 & 133
Brookfield, Connecticut 06804
Phone: 775-6256 Fax: 740-9167

INTERSTATE 84, EXIT 9 HAWLEYVILLE TRANSPORTATION AND DEVELOPMENT STUDY

FINAL REPORT

July, 1997

Prepared For:
Housatonic Valley Council of Elected Officials
Contact Person: J. David Hannon, Senior Planner

Town of Newtown, Connecticut
Contact Person: Elizabeth Stocker, Director of Community Development

By:
Barakos-Landino, Inc.
Hamden, Connecticut

In Association With
Harrall-Michalowski Associates, Inc.
KKO & Associates, Inc.

Prepared in cooperation with the Federal Highway Administration and the Connecticut Department of Transportation. The opinions, findings and conclusions expressed in this publication are those of the Housatonic Valley Council of Elected Officials and do not necessarily reflect the official views or policies of the Connecticut Department of Transportation or the Federal Highway Administration.

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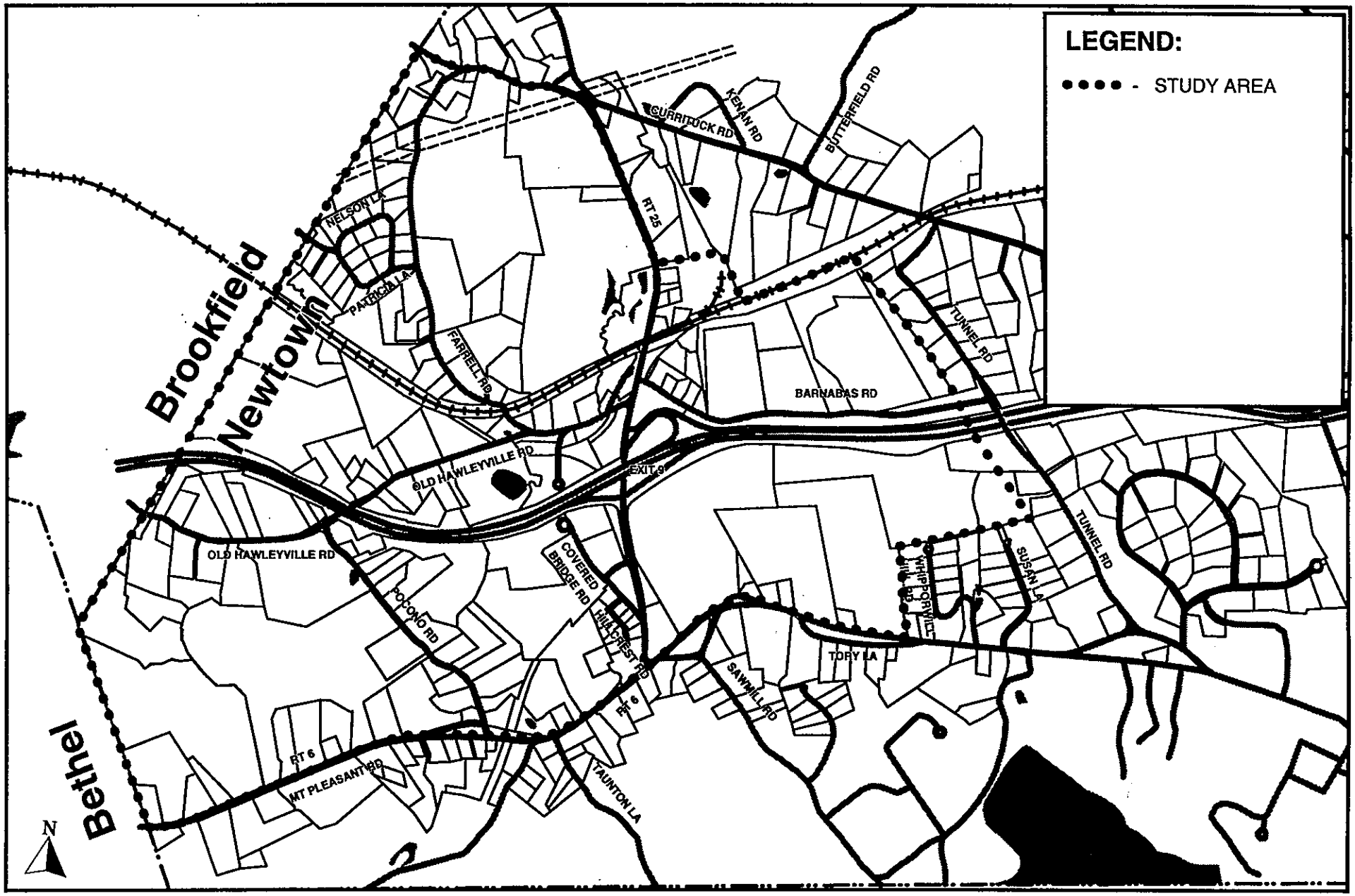
EXECUTIVE SUMMARY

The primary purpose of this study is to create a modern transportation management plan for the Hawleyville section of Newtown. This plan was developed to help realize the area's development potential within the context of existing and future transportation infrastructure serving the area. The primary goal is to obtain a balanced match between the anticipated land use and transportation infrastructure.

The Study Area, as shown on Figure E-1, has been analyzed in terms of existing land use patterns, natural features, infrastructure, existing transportation and traffic conditions, and market trends. Meetings with the Study Advisory Committee, as well as community meetings, have been used to gain input on both technical issues and community aspirations for the Study Area. This analysis and dialogue has assisted the consultant team in the formulation of a series of alternative conservation and development scenarios, which have been tested through presentation to the Advisory Committee. This process has resulted in the recommendation of the short term, mid term, and long term conservation and development scenarios, presented herein, to be used as a guide for future activities within the Study Area.

Table E-1 summarizes the amount of anticipated area development based on the market analysis while Figure E-2 displays the relative location of the anticipated development within the study area. Within these overall development levels, some staging of development was required. As discussed later, this staging was used to test the extent of roadway improvements. Figures E-3, E-4, E-5 detail development Areas A, C, and Hawleyville Center, respectfully.

Based upon the extensive multi-disciplined analysis of the Exit 9 Hawleyville Area performed, a market-based comprehensive strategy for conservation and development has been prepared. This strategy provides the opportunity for significant economic development activities without adversely impacting the basic character of Hawleyville or overburdening the natural or built environment.

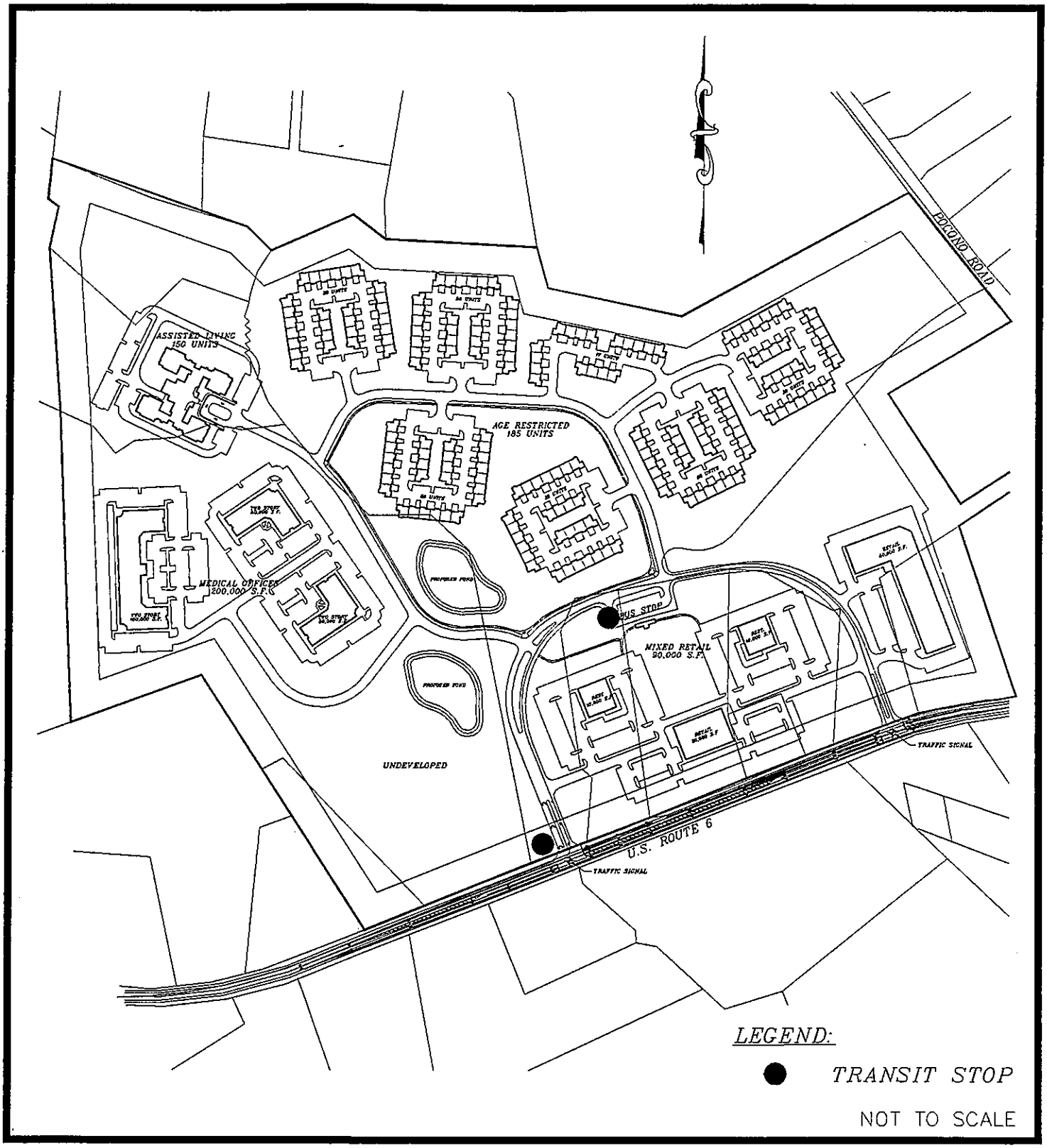


EXIT 9 STUDY AREA
Figure E-1

ILLUSTRATIVE MASTER PLAN
NEWTOWN, CONNECTICUT

Barakos-Iandino Design Group

FIGURE E-2



ILLUSTRATIVE DEVELOPMENT AREA "A" PLAN
NEWTOWN, CONNECTICUT

Barakos-Landino Design Group

FIGURE E-3

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ILLUSTRATIVE DEVELOPMENT AREA "C" PLAN
NEWTOWN, CONNECTICUT

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FIGURE E-4

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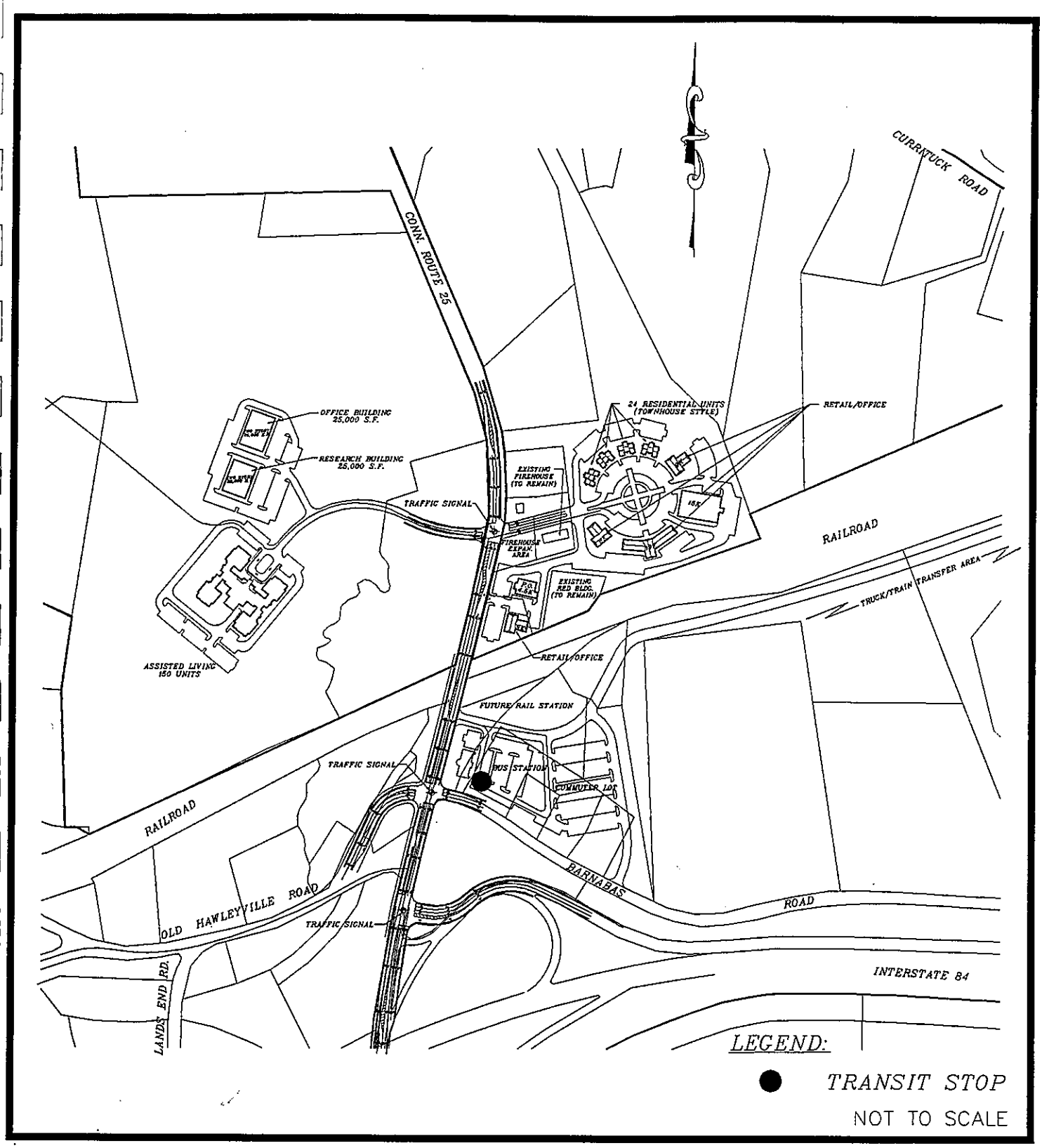


ILLUSTRATIVE DEVELOPMENT HAWLEYVILLE CENTER PLAN
NEWTOWN, CONNECTICUT

Barakos-Landino Design Group

FIGURE E-5

TABLE E-1

Proposed Land Use Mix and Quantities
(At Full Development)

Area A Route 6	150 units of Assisted Living Residential 200,000 Square Feet Medical Office 185 Age Restricted Townhouses	20,000 Square Feet Restaurant 70,000 Square Feet Retail
Area B Hawleyville West	150 units of Assisted Living Residential 50,000 Square feet Office/Research	
Area C Route 25/Route84 Interchange	26 Units Single Family Housing Center 600,000 Square Feet Corporate Office	250 Room Hotel/Conference 30,000 Square Feet Retail
Area D Old Hawleyville Road*	20 Housing Units	
Area E Barnabas Road*	300,000 Square Feet Industrial/Distribution	
Area G Hawleyville East	30,000 Square Feet Office 30,000 Square Feet Retail	24 Townhouses

*not detailed in Master Plan Drawing

Implementation of this strategy in concert with a systematic capital investment program will result in a stronger economic base for Newtown, the Region and the State. This economic base growth will have positive cost/benefit impacts for Newtown and the State with cumulative revenues of $93,000,000 and cumulative public costs of $21,000,000 over a 20 year period.

This fiscal impact is beneficial to the Town of Newtown since there will be a limited number of single family residences developed (46) compared to the estimated 400 single family homes that could be built under existing zoning thereby minimizing the number of school age children. From a state perspective, the quality of development anticipated and the proximity to Route 84 will generate net increases in both sales tax revenues and income tax revenues. The corporate office and medical segments are anticipated to be importers of jobs and expenditures.

Based on the projected conservation and development scenarios presented, which were derived from the various market data and trends, and input from the Advisory Committee Members and the Newtown residents, the transportation infrastructure improvements recommended will be sufficient to facilitate the traffic anticipated to be generated by the proposed development areas. Table E-2 summarizes the suggested transportation improvements. The most significant improvement, which is anticipated to be needed sometime during the mid-term development scenario, will be the reconstruction of the I-84 bridge over Route 25. CDOT has previously recognized the need to widen I-84 in this area, which would require widening within the I-84 median area.. A majority of the recommended improvements contained in this study can be constructed within the existing roadway right-of-way. Since the projected conservation and development scenarios extend 20 years into the future, it is suggested that development and traffic levels be periodically reviewed to update the timing of when specific roadway improvements become necessary.

The central components of the strategy to guide the future of the Hawleyville area are as follows:

- Activities with regional economic impact including corporate offices, a hotel/conference center, retail, medical offices, assisted living and age restricted residential units are concentrated south of Interstate 84 with direct access from Route 25 and/ or Route 6.
- The Hawleyville Center area is strengthened as a mixed use village intended to serve the local area.
- The siting and design of development sites will minimize visual impact on surrounding areas.
- The Barnabas Road area is proposed for continued development as an industrial/distribution area.
- Capital investment for sewer extensions is proposed to be limited to east from the Bethel line on Route 6 and north on Route 25 to Barnabas Road.

TABLE E-2
SUGGESTED ROADWAY IMPROVEMENTS

	TERM		
LOCATION	**SHORT**	**MID**	**LONG**
1. Route 6 at Route 25	OK	Construct SB & EB Double Left Turn Lanes & WB Right Turn Lane	OK
2. Currituck Rd/ Obtuse Rd at Rt 25	Install Signal, Restripe Approach to Rt 25 for Left and Right Turn lanes, formalize geometry	Provide SB Left Turn Advance Signal Phase	OK
3. Rt 25 at Barnabas Rd	OK	Install Signal, Construct WB Left Turn Lane	Construct SB Left Turn Lane & NB Right Turn Lane
4. Rt 25 at Old Hawleyville Rd	OK	Construct NB Left Turn Lane	Realign Old Hawleyville Road Opposite Barnabas Road to Form a Single Intersection[1]
5. Rt 25 at I-84 Westbound Ramps	Install Signal, Construct SB Left Turn Lane & NB Right Turn Lane, Formalize Intersection Geometrics	Construct 2nd WB Left Turn Lane	OK
6. Rt 25 at I-84 Eastbound Ramps	Install Signal, Construct SB Left Turn & NB Right Turn Lanes, Formalize Intersection Geometrics	Construct 2nd NB & SB Thru Lanes	Construct EB Double Left & Right Turn Lanes
7. Route 25	Provide Signal Interconnection Between Intersections	Construct Four to Six Lane Cross Section between Route 6 and Barnabas Road	OK
8. I-84 (between Exit 8 and Exit 10)	OK	Construct Third Lane EB & WB, Widen Route 25 Overpass	OK

[1] Provide two eastbound approach lanes on relocated Old Hawleyville Road.
Note: Location of Improvements are shown in Figure E-6.

ROADWAY IMPROVEMENT LOCATIONS
NEWTOWN, CONNECTICUT

Barakos-Iandino Design Group

FIGURE E-6

- o Capital investments in the road network are limited to improvements at intersections and entrances to major development sites. For the most part, the improvements can be accommodated within the existing right-of-way. Many improvements will be funded by private development entities benefiting from the improvements.
- o The mixed use nature of the development sites will discourage intra-area vehicle trips. A system of pedestrian linkages and transit routes is proposed to further limit the number of private automobile trips.
- o An access management curb cut plan has been developed to increase the efficiency of the road network and to improve traffic safety.
- o Provision has been made for future multi-modal transportation opportunities including passenger rail service as a long range option.

Recommended Actions

In order to implement the strategy for the Exit 9 Hawleyville Area, the following actions are recommended:

- o The final strategy be adopted as an amendment to the 1993 Newtown Plan of Conservation and Development.
- o The zoning strategies contained in the plan be incorporated into specific amendments to the Newtown Zoning Regulation.
- o- The Access Management Curb Cut Plan be adopted and used as a guide by the Planning and Zoning Commission as part of site plan review.
- o The proposed road network improvements that are not likely to be developer funded through CDOT permits be included in the Housatonic Valley Council of Elected Officials and CDOT Transportation Improvement Programs (TIP).
- o Funding applications for selected projects should be submitted as soon as possible by Newtown to the HVCEO for funding under the STP
- o The Newtown Economic Development Commission adopt the strategy and work

with property owners to implement the strategy through a public/private partnership.

- The transit proposals contained in the strategy be submitted to HART for inclusion in its long range planning efforts.
- Programmed improvements to Interstate 84 and its ramp system, and Routes 6 and 25 should be coordinated with CDOT.

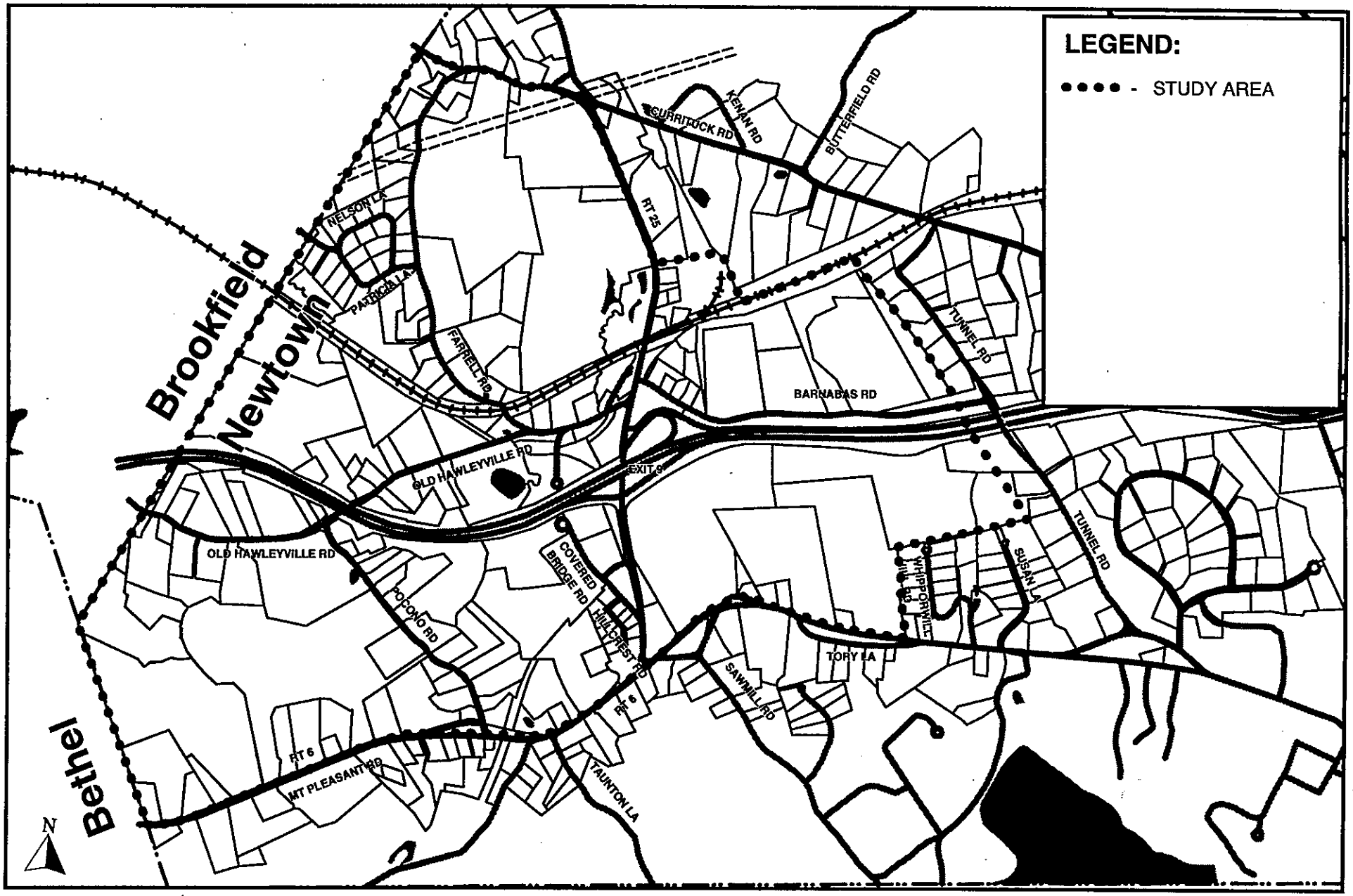
The overall strategy as presented will help realize the area's development potential within the context of existing and future transportation resources and infrastructure. The goal of obtaining a "match" between land use and infrastructure can thus be attained in a managed, well planned approach.

PART I

INTRODUCTION

This report presents a summary of analysis undertaken and proposed conservation and development scenarios for the Interstate 84, Exit 9 Hawleyville Transportation and Development Study. The Study Area, as shown on Figure 1, has been analyzed in terms of existing land use patterns, natural features, infrastructure, existing transportation and traffic conditions, and market trends. Meetings with the Study Advisory Committee, as well as three community meetings, have been used to gain input on both technical issues and community aspirations for the Study Area. This analysis and dialogue has assisted the consultant team in the formulation of a series of alternative conservation and development scenarios, which have been tested through presentation to the Advisory Committee. This process has resulted in the recommendation of the short term, mid term, and long term conservation and development scenarios, presented herein, to be used as a guide for future activities within the Study Area.

The report is organized into the following basic sections: Market Demand; Existing Transportation Conditions; Future Land Use Plan; Illustrative Master Plan; Illustrative Development Plan; Illustrative Computer Graphic Images; Future Land Use Plans; Future Transportation Improvements; Computer Graphic Images of Transportation Improvements; Costs Benefit Analysis; and Access Management/ Curb Cut Plan.



EXIT 9 STUDY AREA

Figure 1

PART II

MARKET DEMAND

Trends in the Real Estate Market

Traditional traffic studies use the development allowed by local zoning or the municipal plan of development for the additive process of determining total future trip generation. This study was based on a market driven analysis to understand the market forces which will shape the future development of this area.

The overall region considered in the analysis of market forces expected to affect the Study Area is the Interstate 84 (I-84) Corridor from Southeast, New York to Middlebury, Connecticut. Land use development trends have been examined within this overall area to identify changes that have been notable over the past 20 years, with particular attention to development at the highway interchanges. The Study Area was considered to be generally competitive within this overall area. Further, the noted trends assisted in determining the potential land uses for this study.

The analysis considered new construction activity on a statewide basis, as well as sales activity for various uses in towns along the I-84 Corridor, in order to gauge the more recent development trends. Further, new construction activity within a five town primary competitive area was analyzed to develop estimates of anticipated land absorption, or market share for particular uses, and to develop forecasts. Much of this material was presented at a public meeting in September, 1996. The trends identified in the market area, and the implication of such trends, are summarized herein.

Traditionally, growth has occurred in corporate office and industrial sectors. However, a change in the character of the state's economy over the past two decades has been the ascendancy of the service sector. Within this sector the three component areas which have demonstrated notable growth are retail, medical and hospitality/travel service. Each component is discussed below.

Corporate

One notable trend, with respect to ambitions for corporate development at Exit 9, is that the market area generally has proven increasingly attractive to corporate facilities. Among the top 100 companies headquartered in Connecticut, ten are located in the market area: Union Carbide, Praxair, Duracell, First Brands, Uniroyal Chemical, Timex, Ethan Allen, Duty Free International, General DataComm, and Morganti. Boehringer-Ingelheim and Hachette Book Group, two of the 20 largest foreign owned companies in Connecticut, are located in the area. Additionally, IBM has a major facility in Southbury and has 600 acres available for development in Ridgefield.

Another trend that is evident is the location or acquisition of production or support services in the Corridor by major companies based elsewhere. In this category is the IBM facility in Southbury, a variety of Pitney-Bowes facilities, a warehouse for Remington Products, Eaton Corporation production facilities, Branson subsidiary of Emerson Electric Co., Microgenosis subsidiary of CSK Japan, Hughes Optical subsidiary of General Motors Corporation, Hubbell Plastics division of Hubbell, Inc., Amphenol production facility, Barden division of FAG Bearings Corporation, Burndy foundry division, FIDCO subsidiary of Nestle, Kimberly Clark production facility, Dade International Inc., Sorvall Products, L.P., Union Camp Corrugated production facility. There are also major local companies, such as Taunton Press and Curtis Packaging, which have expanded in recent years.

While year to year fluctuations in employment have been evident, the general trend has been for an increased corporate presence in the region and a continuing and growing affiliation of the region with major U.S. and foreign corporations through local production facilities and subsidiaries.

Industrial

Within the industrial sector, there has been very slow growth in the larger industrial base companies, while there has been evidence of growth of smaller emerging manufacturers. This activity in the market area has been generated by firms moving from the higher facility and labor

cost markets of lower Fairfield County, as well as indigenous growth. In general, demand for industrial facilities tend to be for smaller buildings than historically identified with industrial users.

Retail

Currently, the strongest segment of the real estate market in the region is retail. Danbury has become a regional retail center with the opening of Danbury Fair Mall and major retail development has expanded around the mall, along Federal Road into Brookfield, and along Newtown Road.

As population of suburban communities in the region has increased, retail expansion has also occurred. New plazas constructed over the past 20 years include Sand Hill Plaza in Newtown, several new centers along Route 25 in Monroe, the Shoprite Plaza, Costco and others in Brookfield, and K-Mart in New Milford. Proposed retail centers include the Pumpkin Patch in Southbury, while older plazas in Newtown Center are slated for redevelopment. Consumer clamor for convenience, combined with the region's rising population and income will continue to attract retailers into the market. As the more centrally located sites are built up, the more outlying secondary locations will gain enhanced market appeal.

Medical Services

A service sector that has been increasing and changing rapidly in the market area has been the medical field. In this segment are included services as varied as direct patient care, health management organizations, administration, hospitals, convalescent facilities, assisted living, home health care, laboratory and testing services.

Two of the largest recent "corporate" office transactions have been the acquisitions of Oxford Health Plan and Physicians Health Services. Medical offices and medical condominiums have been developing around many of the State's hospitals. Outlying medical service centers have been sprouting such as family walk-in clinics, surgi-centers, and branch offices of group medical

practices. Another trend has been the growth in biomedical testing laboratories which may serve patients directly, or operate as a support service to primary care providers.

As home health care has expanded, organizations such as Visiting Nurse Associations have required larger administrative support facilities. Physical therapy practices and Workers' Compensation management has resulted in a growth of physical therapy centers such as the new facility in downtown Danbury.

A variety of expanding residential/medical support facilities have evolved. Hospitals remain the most intensive type of resident care, but there are also convalescent hospitals licensed for a variety of care levels, and more recently there has been a growth in assisted living accommodations. The latter facilities typically have units for well and frail elderly with a medical facility attached to the residential complex. The State has also changed its philosophy from an institutionalized type of treatment for the mentally ill to community based programs, which results in a growing inventory of group homes staffed with medical or social service support personnel.

Hospitality/Travel

Another expanding service sector along the I-84 Corridor has been the hospitality/travel service industry. New hotels built during the past 20 to 25 years have included the Danbury Hilton, Ethan Allen Inn, the Ramada Inn, Comfort Inn, Berkshire Best Western, Southbury Hilton and Marriott Courtyard in Waterbury. State-wide activity of hotel/conference centers is evidenced by the Marriott chain facilities at Farmington on I-84, Rocky Hill on I-91 and Trumbull at Route 8/Merritt Parkway. There is also a conference facility at Ethan Allen Inn for corporate training, while the Heritage Inn at Heritage Village operates a conference and training facility. As telecommunications technology advances, some hotels have been offering video-conferencing facilities. As the corporate presence in the region grows, there can be a growing demand for extended stay suite type accommodations. The other aspects of hospitality and travel services that have expanded steadily have been restaurants and gas stations. A travel center has been

developed at Exit 14 of I-84 in Southbury which combines a bus station, commuter parking, gas station, restaurant and some convenience retail.

Impact of Trends

The general trends described above indicate several likely development opportunities for vacant lands available within the Study Area. The community has an opportunity to market local sites to major companies which have already established a presence in the region. The region has increased its market visibility as a corporate location and it has a proven history of successful production, distribution and subsidiary relationships with several of the country's leading manufacturing companies.

These established relationships should provide an entre' and competitive advantage in marketing the region and Study Area over other sections of the State where such relationships do not exist and where economic development is focused more narrowly on retention and expansion of local small business. A successful strategy for the Study Area could be to lobby companies with a presence in the region to produce a new product line or consolidate subsidiary operations into the region.

The continuing shift in the structure of the State economy opens opportunities in expanded retail service and diversified health service facilities. These are two of the most rapidly changing and growing service sector components. The study area is a desirable location for facilities to support such uses due to its location coupled with the growing population and high income of the region.

The hotel industry and tourism have been expanding sectors of the area economy. Earlier hotel development was clustered closer into the center of communities, while newer hotels have been situated at more outlying locations close to interstate interchanges This concept seems appropriate for the Study Area.

In terms of industrial development, the "Economic Strategy for the Housatonic Valley Region" prepared by Mt. Auburn Associates in 1994 proposes that a strategy to strengthen and promote key clusters be pursued. The industrial cluster targeted is photonics, which deals with the generation, transmission and detection of light that is used commercially as a carrier of information or energy. The industry is composed of firms involved in generating light, transmitting light through the atmosphere via optical fibers, and detecting light or controlling the amount of light generated or transmitted. There are a growing number of industrial, medical and military applications of photonics. At the time of its publication, there were about 20 companies in the Housatonic Valley Region that had some linkages to the photonics industry. This cluster might be a logical target use for industrial and corporate office sites within the Study Area.

Market Analysis Summary

An analysis of land and building sales data, new construction trends, as well as overall development patterns was performed. The resulting matrix, as shown in Table 1, presents a demand and supply assessment for the market area, and relative support for various uses within Newtown and the Study Area. The terms used for the Newtown market positions reflect the relative positions of Newtown within the market in terms of market share for the listed uses.

TABLE 1
DEMAND AND SUPPLY ASSESSMENT

USE	CURRENT[1] DEMAND LEVEL	CURRENT[2] SUPPLY LEVEL	NEWTOWN[3] MARKET POSITION	EXIT 9[4] MARKET APPEAL
OFFICE				
Corporate	Weak	Oversupply	Trailer	Competitive
Business	Weak	Oversupply	Trailer	Competitive
Professional	Slow	Oversupply	Contender	Competitive
Medical	Active	Balance	Contender	Competitive
INDUSTRIAL				
Manufacturing	Slow	Oversupply	Contender	Limited
Small "Flex" Space	Active	Shortage	Contender	Limited
Warehouse/Dist.	Slow	Balance	Contender	Competitive
Service/Utility	Active	Balance	Contender	Competitive
RETAIL				
Grocery/Conv.	Strong	Shortage	Contender	Competitive
Big Box	Active	Shortage	Trailer	Limited
Highway Service	Active	Balance	Contender	Competitive
RESIDENTIAL				
Single Family	Strong	Balance	Leader	Strong
Condominium	Active	Balance	Trailer	Competitive
Hotel/Motel	Slow	Balance	Trailer	Competitive
Nursing Home	Active	Shortage	Trailer	Competitive
Assisted Living	Active	Shortage	Trailer	Competitive

[1] Represents the market demand for various market segments in the market area.

[2] Represents the supply of available space as compared to demand in the market area.

[3] Represents Newtown's market position as a location for various market segments.

[4] Represents the Study Area's potential to attract various market segments.

Implications of Market Data for Development Scenarios

The two key components of development potential within the Study Area are the market support for potential uses and the physical development potential. The historical trends in the market area, discussed above, were translated into specific use categories on a square foot basis in order to estimate development potential based upon market conditions This development potential is summarized in Table 2 and discussed below.

A study of eight year average annual dollar value of permits for the three major construction categories for the five town primary market indicates that the highest value was for office construction. Newtown's greatest market share, however, was in retail. Projecting forward this average construction and historic market share for Newtown, results in a relatively small level of industrial activity and a much higher level of retail activity. Table 2 further summarizes the anticipated costs of construction and the resultant projected average annual construction square footage.

TABLE 2
DEVELOPMENT POTENTIAL

LAND USE	PRIMARY MARKET AREA AVERAGE ANNUAL DOLLAR VALUE	PERCENT NEWTOWN MARKET SHARE	PROJECTED NEWTOWN AVERAGE ANNUAL DOLLAR VALUE	CONSTRUCTION COSTS PER SQUARE FOOT	PROJECTED NEWTOWN AVERAGE ANNUAL CONSTRUCTION SQUARE FOOTAGE
Retail	$ 7,626,000	22.4 %	$ 1,708,300	$ 60	28,470 sf
Industrial	$ 2,092,600	1.6 %	$ 33,500	$ 40	900 sf
Office	$ 9,970,000	6.6 %	$ 658,000	$ 80	8,225 sf

However, it would be unrealistic to assume that all development in Newtown would occur within the Study Area. In fact, competitive locations within Newtown over the next 20 years would include sites at Edmond Road, Commerce Drive, Route 25 and Fairfield Hills. Considering the competition from these other locations, it is estimated that the Study Area would capture no more than 20% - 25% of the non-residential construction activity. That would be a total of 150,000 - 188,000 square feet over 20 years.

This study focused on non-residential development because the Town Plan identifies this area as an economic development location. However, residential construction is the strongest market in the primary market area and in Newtown. In the five towns in the primary market area, 70% of new construction value was residential. In this category, Newtown was the market area leader with a 39% market share.

In projecting residential construction, it is simpler to examine the number of units being built rather than the dollar volume. In Newtown, the level of activity over the past several years is:

Year	Dwelling Units
1990	69 units
1991	92 units
1992	143 units
1993	207 units
1994	213 units
1995	210 units
1996	209 units
Total	1143 units
Average	163 units

Projecting the market at the most recent level of activity results in approximately 210 homes per year, or 4,200 new homes over the 20 year study period depending upon land availability. It should be noted that in 1995, 17 of the units were condominium units and in 1996 18 of the units were condominium units.

Similar to the situation with non-residential construction, there are also many locations other

than the Study Area which can provide attractive building lots for new homes. The choice in residential lands, in fact, is wider than in non-residential, since most of the Town is designated for residential development under the Zoning Ordinance.

The Study Area is about 1,200 acres, which is approximately 3% of the total Town land. Given this data, the Study Area is likely to capture about 5% share of the projected new construction activity, or 210 units over the 20 year forecast period. Current residential zoning in the Study Area is mostly one and two acres. At an average of 1.5 acres per unit, the projected residential construction would absorb about 315 acres of developable land with an additional 60 acres for roads and loss to lot layout. The combined residential and non-residential new construction projected for the Study Area over the next 20 years, based on historic average levels of activity, would absorb an estimated 397 acres of developable land.

In summary, a 20 year projection of recent historic market trends, would see the likely development of the Study Area to be an addition of about:

- 210 single family homes
- 32,900 to 41,125 square feet of new office
- 3,600 to 4,500 square feet of new industrial
- 113,880 to 142,350 square feet of new retail

While historical trends would predict the level of development shown above, it is believed that higher levels of development could be achieved over the next 20 years. This assumption is based upon the following factors:

- Available competitive sites outside the Study Area will be absorbed since many of these sites are currently being actively marketed.
- The ability to extend sanitary sewer service to the Study Area will increase the feasibility of site development.
- Regulatory changes could be adopted which would provide incentives to various uses.

- The Town of Newtown would aggressively market development opportunities in the Study Area.

Therefore, it is logical to test a range of market development scenarios which go from the most conservative market based scenario to the more aggressive, proactive scenario per the above assumptions. These more aggressive scenarios will be market based in terms of uses with historical market support, but the amount of square footage will relate to physical site capacity and community aspirations.

In order to accommodate this level of development, some redevelopment as well as zoning revisions may be necessary. This would be particularly true in order to accommodate the retail development. However, the existing B-2 zone on Route 6 and the M-4 zone in the Hawleyville Center area could accommodate the bulk of this retail development. Retail use in the M-4 zone is permitted in the form of a shopping center with a minimum 10 acre site. The site currently utilized for lumber transfer meets this minimum site requirement.

PART III

EXISTING TRANSPORTATION CONDITIONS

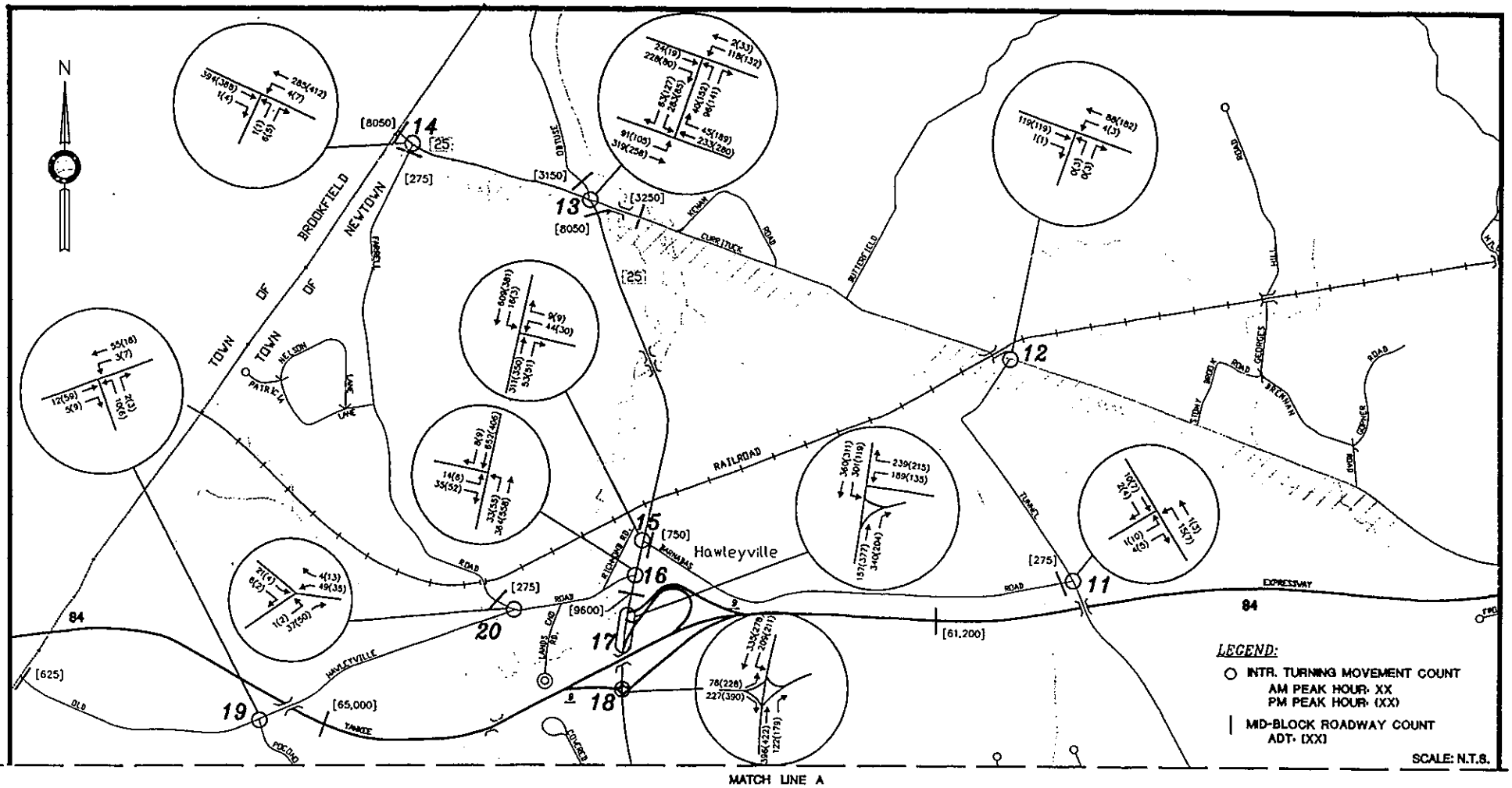
For background, a brief summary review of the existing roadway and transit service conditions within the Study Area is presented. An accurate assessment of the existing traffic conditions, from a transportation infrastructure and transit perspective, will serve as a base against which to measure the future impact of development. This information was originally presented to the committee members and public in September, 1996, and compiled in a memorandum which is available at the Housatonic Valley Council of Elected Officials (HVCEO) office.

Existing Roadway Conditions

An extensive field reconnaissance and traffic volume count survey program was performed within the study area during July and August, 1996. As-built roadway mapping and plans and supplemental traffic volumes for key roadways were gathered from various public agencies. Existing roadway geometrics, traffic control, available right-of-way, speed limits, and functional classifications were determined.

Intersections included in this study for analysis were selected based on input from the Advisory Committee and field reconnaissance of the area. Twenty intersections, as shown on Figures 2A and 2B, were chosen. All of the intersections, except for the intersection of Route 6 and Route 25 are controlled by stop signs. The intersection of Route 25 and Route 6 is controlled by a full-actuated traffic signal.

Manual turning movement counts at the study intersections were conducted on a typical weekday from 7:00 AM to 9:00 AM, and from 4:00 PM to 6:00 PM, during the peak commuter periods. Automatic traffic recorder (ATR) machine counts were obtained for a 24 four hour period at select locations. The following illustrations summarize the AM and PM peak hour manual intersection counts, as well as the Average Daily Traffic (ADT) volumes.



11/11/96

INVENTORY OF EXISTING TRAFFIC VOLUMES
HAWLEYVILLE TRANSPORTATION AND DEVELOPMENT STUDY
INTERSTATE 84, EXIT 9 - HAWLEYVILLE
NEWTOWN, CONNECTICUT

Barakos-Landino Design Group

FIGURE 2A

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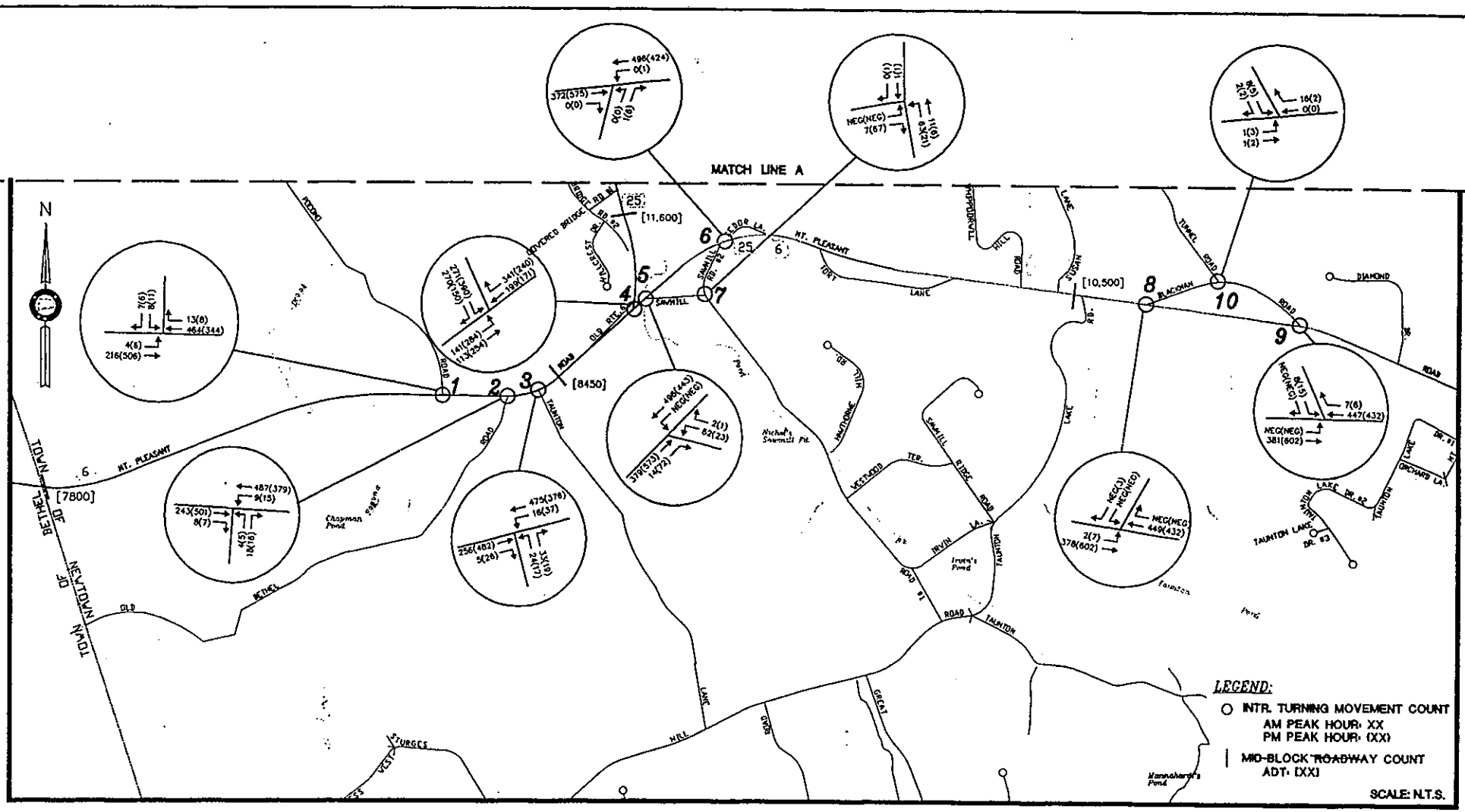

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INTERSTATE 84, EXIT 9 - HAWLEYVILLE
NEWTOWN, CONNECTICUT

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FIGURE 2B

TD605804

The study intersections were analyzed to determine their existing traffic operation from a capacity perspective. The adequacy, or how well an intersection is operating, was determined based on methodologies described in the 1995 Highway Capacity Manual, published by the Transportation Research Board.

As indicated in Table 3 a majority of the analyzed intersections are operating at acceptable levels of service (LOS), "C" or better, with few exceptions. The intersections of Route 25 at I-84 eastbound and westbound ramps, and the intersection of Route 25 at Currituck Road/Obtuse Road are indicated to operate at LOS "E" or "F" due to motorists at the side street having to wait at least 30 seconds to enter the main travel stream.

Existing Transit Operations

Transit service in the Housatonic Valley Region is provided by the Housatonic Area Regional Transit District (HART). The Transit District was created as the Danbury-Bethel Transit District in 1972. In 1982, it became known as the Housatonic Area Regional Transit District (HART).

The eight members towns which comprise the Transit District include Danbury, Bethel, Brookfield, New Milford, Newtown, Redding, Ridgefield and New Fairfield. The Transit District is governed by a nine member Board of Directors with at least one representative from each member town.

TABLE 3

EXISTING 1996 WEEKDAY PEAK HOUR LEVELS OF SERVICE[1]

Intersection	AM Peak Hour	PM Peak Hour
1. Route 6 at Pocono Rd	B	B
2. Route 6 at Bethel Rd	A	B
3. Route 6 at Taunton Ln	B	C
4. Route 6 at Route 25	C	C
5. Routes 6/ 25 at Sawmill Rd	C	C
6. Routes 6/ 25 at Sawmill Rd #2	A	B
7. Sawmill Rd at Sawmill Rd #2	A	A
8. Routes 6/ 25 at Blackman Rd West	B	B
9. Routes 6/25 at Blackman Rd East	B	C
10. Blackman Rd at Tunnel Rd	A	A
11. Tunnel Rd at Barnabas Rd	A	A
12. Tunnel Rd at Currituck Rd	A	A
13a. Route 25 at Currituck/ Obtuse Rd	A	B
13b. Currituck/ Obtuse Rd at Route 25	F	C
14. Route 25 at Farrell Rd	A	B
15. Route 25 at Barnabas Rd	C	C
16. Route 25 at Old Hawleyville Rd	C	B
17. Route 25 at I-84 Westbound Ramps	F	E
18. Route 25 at I-84 Eastbound Ramps	F	F
19. Old Hawleyville Rd at Farrell Rd	A	A
20. Old Hawleyville Rd at Pocono Rd	A	A

[1]Level of Service is a qualitative measurement that characterizes the operational conditions within a traffic stream and their perception by motorists and passengers. Level of Service "A" represents the best operating conditions and Level of Service "F" represents the worst. Level of Service "C" or "D" are considered an acceptable quality of service to motorists and passengers.

The HART fixed route bus system serves the towns of Newtown, New Milford, Danbury, Brookfield, Bethel and Ridgefield. Fixed line transit (bus route no. 2) service was extended into Newtown during April, 1996 to address a problem with the bus turn-around point located on Route 6 at the "Jungle Garden Center(formerly the D'Agostino's Nursery" parking lot in Bethel. This turn-around point was formally the easterly end of bus route no. 2 from the Downtown Danbury Pulse Point. This route was extended eastward from Stony Hill into Newtown along Route 6 and then northerly along Route 25 to the commuter parking lot located in Hawleyville. Average weekday ridership on bus route 2 was 325 in Fiscal Year 1995 and an average of 305 passengers used the line on Saturdays.

Public information about the route extension has been available for the last four months. Given the low-density nature of the area served by the extension, it is not surprising that only a few passengers use this service. It can be assumed that a majority of the passengers utilizing bus route no. 2 are Bethel or Danbury residents.

PART IV

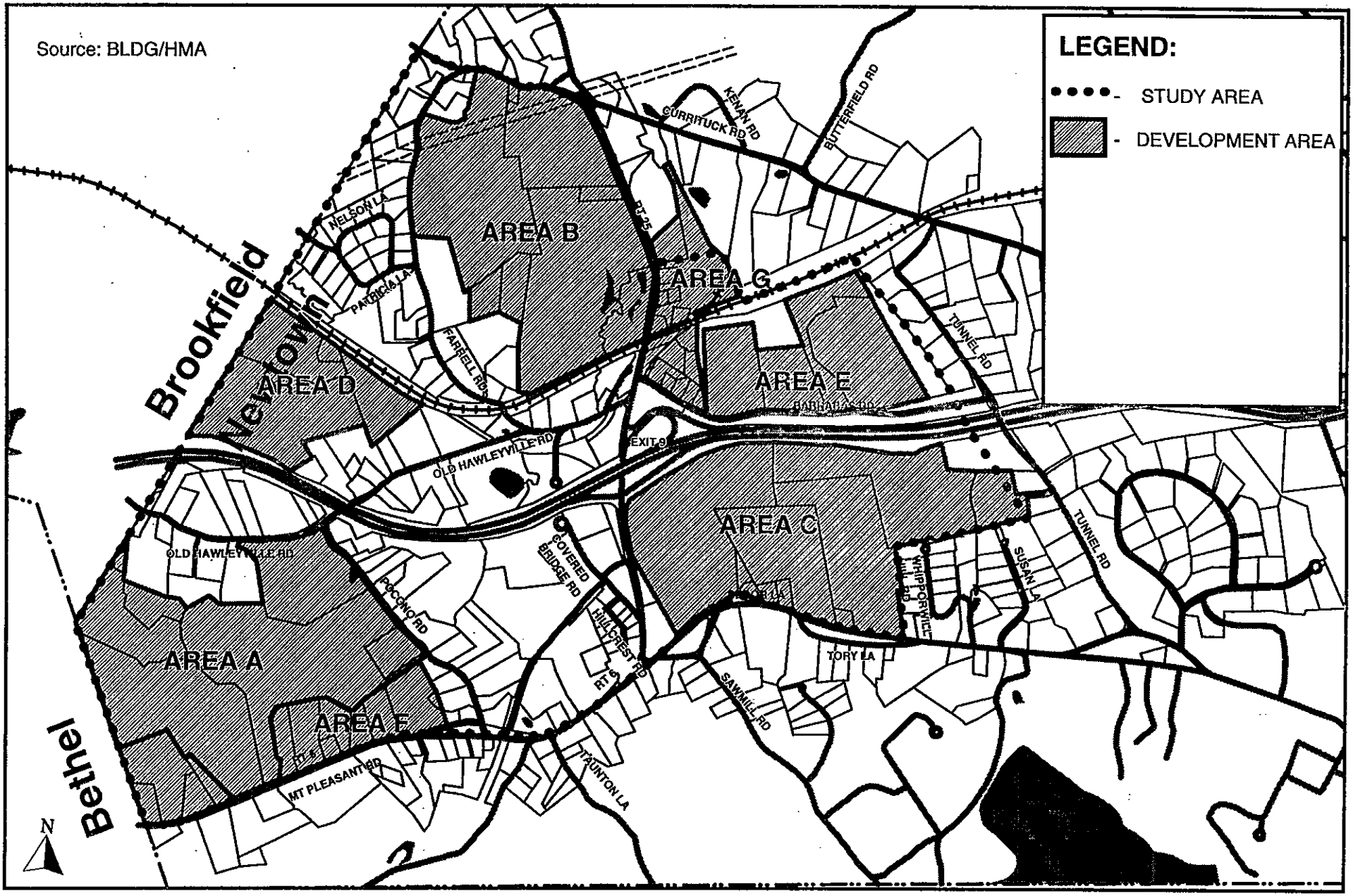
FUTURE LAND USE PLAN

Background Analysis and Scenarios

During the first several months of the study period, various land use scenarios for Hawleyville were formulated, presented and discussed. These scenarios were structured to include development phases (short, mid and long term) as well as the designation of sub-areas for potential development opportunities. These scenarios are presented in the Appendix. Figure 3 shows the locations of the sub-areas.

Prior to the preparation of conservation and development scenarios for the Study Area, extensive analysis of site conditions was undertaken to determine the extent of buildable area within each sub-area. This process involved digital mapping of wetlands, steep slopes, flood hazard areas and soils with limitations for development. Figures 4 through 7 show the results of this analysis. As a result of this analysis, the amount of buildable area is significantly decreased in Area B and to a lesser extent in Areas A and C. The remaining areas are less impacted by physical site constraints. In addition, vehicular access is an issue with some areas. This is particularly true for Area D which has no direct access from either Route 6 or Route 25 or a non-residential street such as Barnabas Road.

Overall, the development scenarios recognized logical development trends related to use of the automobile as the primary transportation mode and the inherent value of the Exit 9 interchange for development related to this transportation mode. An attempt was made to focus on two distinct use categories; medical/assisted living and corporate use for the major parcels to the south of Interstate 84. Such uses have a regional market and would value access to Interstate 84. The development philosophy north of Interstate 84 placed emphasis on the creation of a village type development in the Hawleyville Center Area with focus on development to serve the community and growth occurring in the Study Area. The possibility of passenger rail transportation is a long term concept which may impact this area. However, based upon previous

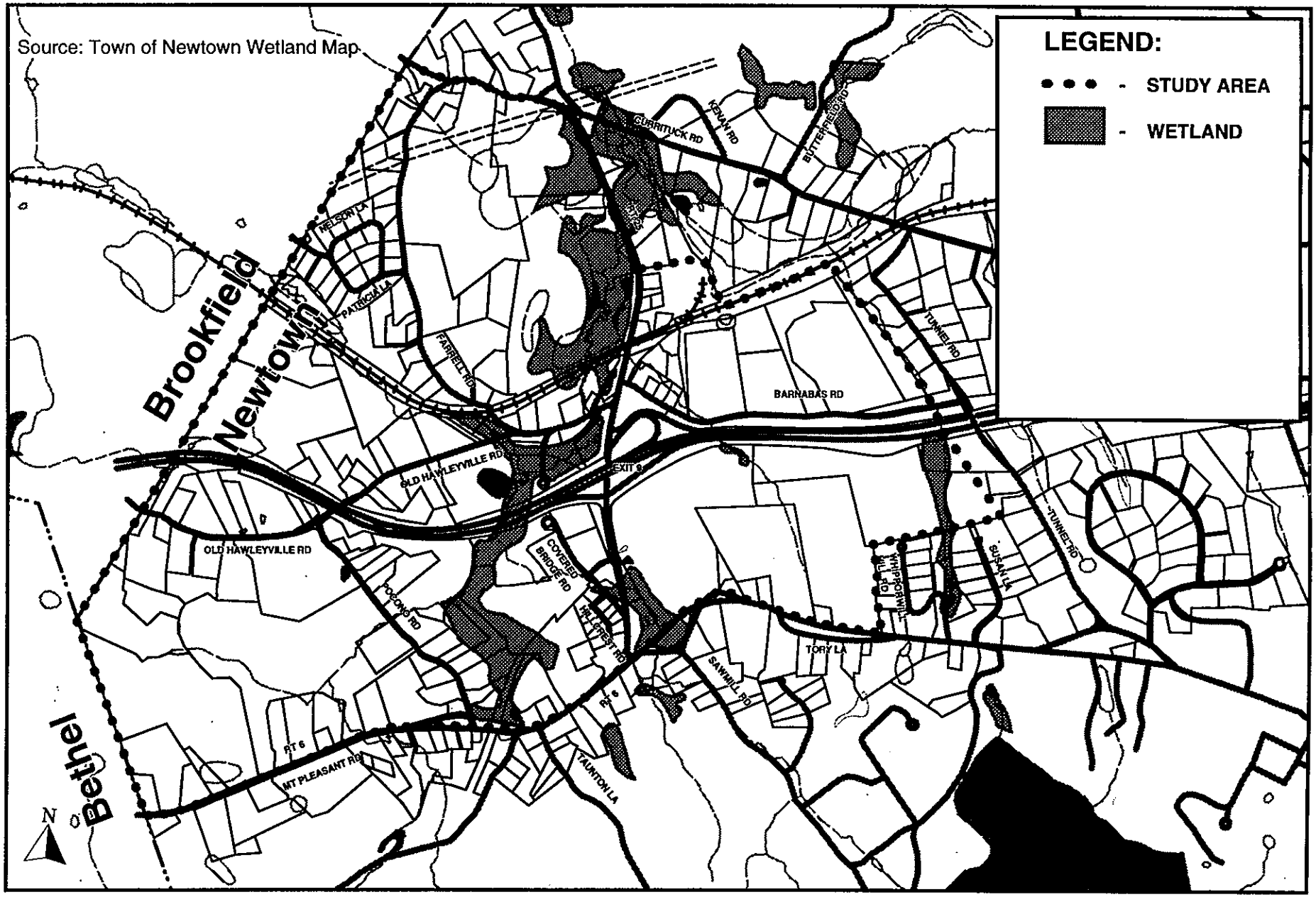


1 inch = 1,500 ft.

December 1996

EXIT 9 DEVELOPMENT AREAS

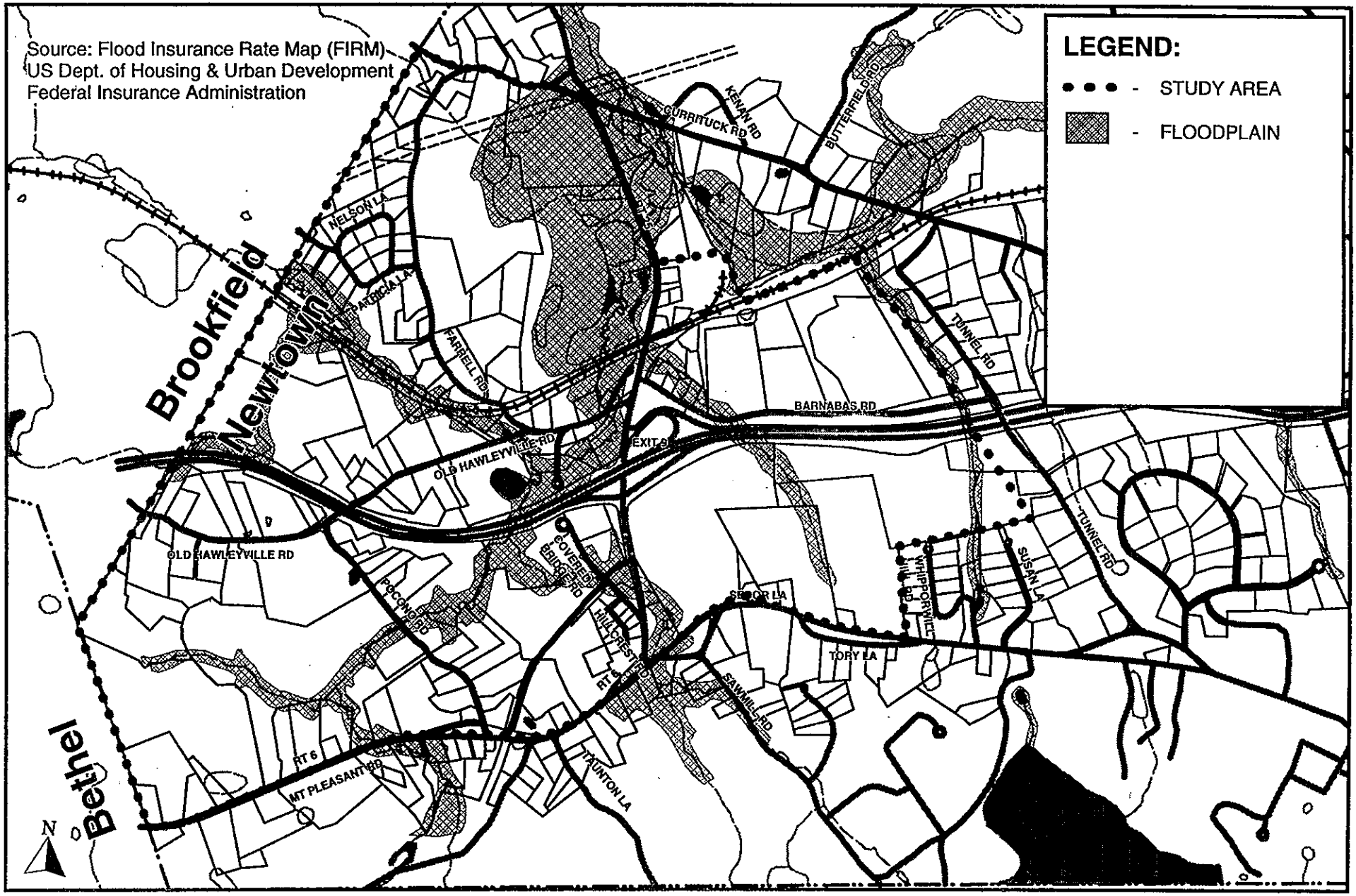
Figure 3



1 inch = 1,500 ft.

Revised: February 1997

WETLANDS
Figure 4

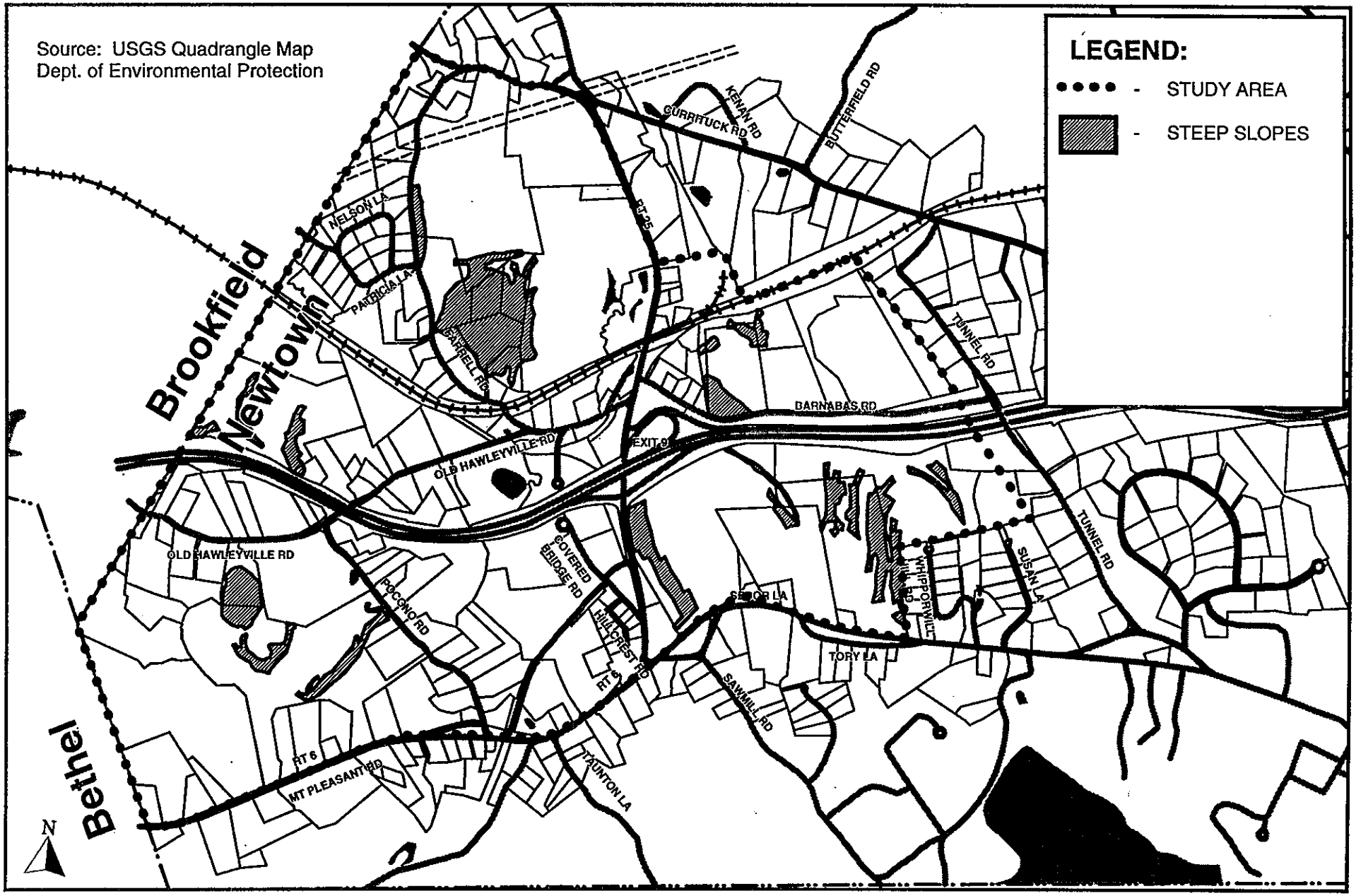


1 inch = 1,500 ft.

December 1996

FLOODPLAIN AREAS

Figure 5

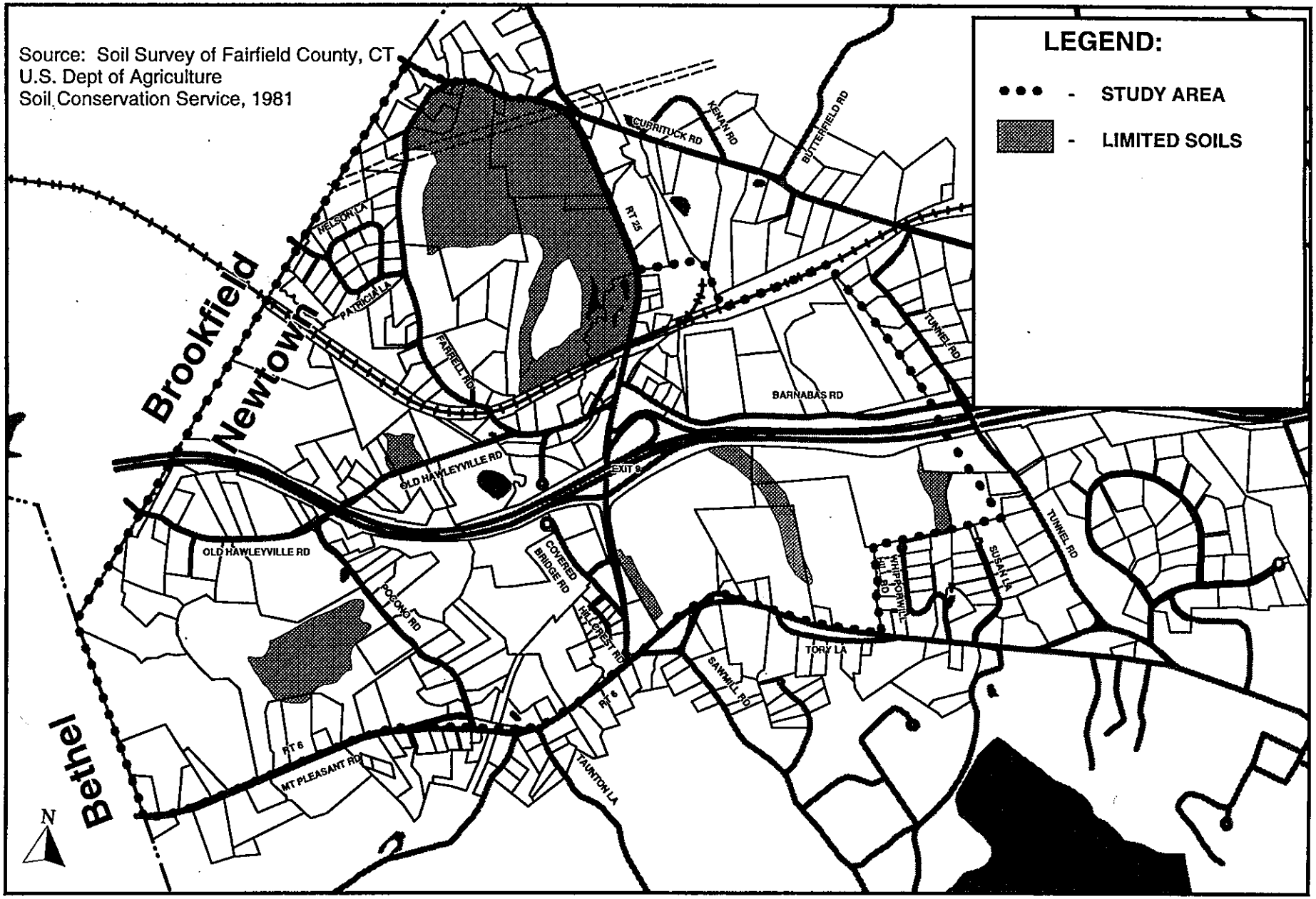


1 inch = 1,500 ft.

December 1996

STEEP SLOPES

Figure 6



1 inch = 1,500 ft.

Revised: February 1997

LIMITED SOILS
Figure 7

studies prepared for the HVCEO as well as analysis completed as part of this study, it is apparent that such passenger rail service has a low probability during the 20 year horizon established for this study. There will be the opportunity for transit/automobile intermodal activity in the area through increased use of the HART system. Furthermore, mixed development in the Hawleyville Center which includes various forms of commerce as well as residential development could be supported by the availability of multi-modal transportation. If the feasibility of passenger rail service increases over time, the potential of Hawleyville to develop as a "village" in the 21st century definition with creative linkages of work/live functions will increase. This village will be supported by emerging technological and transportation trends.

The development scenarios considered a coordinated approach to capital investment and resulting fiscal impacts. The three primary categories of capital investment needed in the area are the extension of sanitary sewer service, a public water supply system, and roadway improvements. The concentration of development in the area south of Interstate 84 would result in the need to extend the sewer line from Bethel for a shorter distance than would be necessary to serve the entire study area. The fact that the anticipated private investment level is highest in the area south of Interstate 84 would result in a very favorable cost benefit ratio for the capital investment in the expansion of sewer service. Sewer service should not be provided north of Interstate 84. Any residential development at densities greater than currently allowed in the R-1 and R-2 zones should not be allowed unless on site sewage treatment is found to be feasible based upon site specific engineering. Any higher density residential development would only occur in conjunction with non-residential development in order to create a more favorable cost benefit ratio.

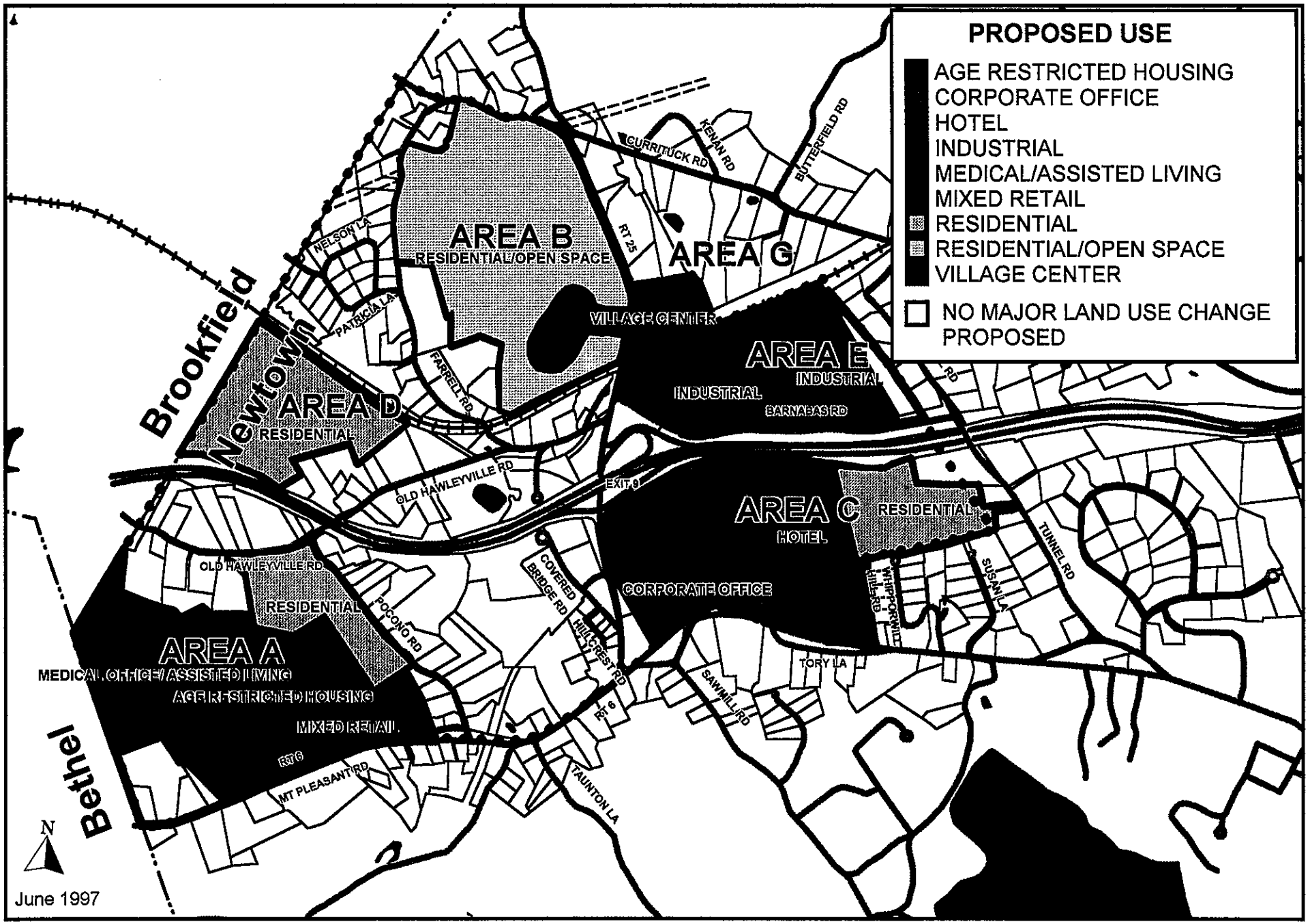
As described later in the report, roadway improvements are primarily intended to provide satisfactory capacity for the projected development levels. Therefore, there would be a direct relationship between capital investment in the roadway network and private development investment. At the same time, opportunities for increased use of alternative transportation modes would be monitored throughout the development period.

The land use proposals and intensity of development within each sub-area were based on the following basic principles:

- neighborhood integrity and the character of residential areas should be preserved.
- development intensities should be higher south of Route 84 in accordance with better access and infrastructure support.
- future development should be configured in a manner which discourages strip development and minimizes the visual impact on major roads.
- where feasible, a mix of uses should be encouraged to reduce the need for intra-area auto trips.
- alternative modes of travel including transit, bicycle and pedestrian should be encouraged and accommodated through regulations and design.
- the extension of sanitary sewer service should not go beyond Barnabas Road thereby limiting the intensity of development in the Hawleyville Center area.
- property owners should be provided an opportunity for a reasonable use of their property based upon market and physical conditions.

Future Land Use Plan

As a result of much dialogue and the application of the principles outlined above, a composite Land Use Plan Scenario was prepared. This Plan is presented in Figure 8. The level of development proposed is market based with the assumptions that future levels of activity in the area will exceed historical trends based upon the factors described in Part II. This Plan proposes mixed use development in Sub-Area A on Route 6 with an emphasis on assisted living units, age restricted, independent residential units, medical offices, retail and restaurants. Sub-Area C at the intersection of Route 25 and Route 84 would be developed for corporate office, a hotel/conference center and single family residential (eastern portion). There would also be limited retail and service space intended to support the corporate office and hotel. Area G and the southeast quadrant of Sub-Area B would be combined into a Hawleyville Center East and West configuration.



LAND USE PLAN SCENARIO

Figure 8

The Hawleyville Center West area is focused on an approximately a 12 acre site located within Sub-Area B. This area would be developed and linked to Route 25 via a pedestrian greenway and vehicular entrance. The balance of Area B is a village hinterland with extensive open space use of the wetland area and low density residential use on the uplands towards Farrell Road. This hinterland is connected to the 12 acre area and ultimately Route 25 via walking and biking trails.

Hawleyville Center East is a more intensive development area with mixed uses developed around a new village green design. This mixed use development accommodates the uses already in the area as well as an expansion of such uses. The small residential portion of this area is in a townhouse configuration around the green. The controlling factor on intensity of use (particularly residential) within the Hawleyville Center Area will be the capacity of on-site septic. This is consistent with the investment philosophy of restricting the sewer extension to the Barnabas Road area, south of the railroad tracks. In all cases within the Hawleyville Center Area, the capacity of on site sewage treatment will be the controlling factor as to the amount of development that will take place. By allowing industrial as a use, the lumber transfer and industrial use in the "red barn" could continue as conforming uses. The concept for the area is that the lumber transfer use could eventually be shifted somewhat to the east and south along the railroad right-of-way. There is a possibility that a northerly portion of the industrial area off Barnabas Road could be incorporated into this area. In addition, a multi-modal transportation area is proposed through an expansion of the area currently occupied by the Park and Ride lot. In order to provide guidance for the implementation of the Future Land Use Plan, proposed zoning regulations and/or revisions to regulations currently contained in the Newtown Zoning Regulations have been required. This material is contained in the Appendix.

The proposals included in the Land Use Plan were then further refined in the form of a Master Plan and Illustrative Site Plans. In addition, Computer Graphic Illustrative Development Area Images have been prepared to show how proposed development scenarios might appear in relationship to the existing character of the Hawleyville Area. This material is contained in later chapters.

It should be noted that all proposals in the form of the Illustrative Master Plan and Illustrative Site Plans are for planning purposes and actual implementation will be primarily a private sector activity in accordance with all applicable regulations and standards

Trip Reduction

One of the goals of this study is to reduce the amount of vehicle trips resulting from development in the area. The following presents approaches to trip reduction.

Land Use Mix

The land-use mix proposed in this report offers opportunities for residents, employees, and other area users to walk between work, residential, service, and retail areas. Specifically, in order to encourage pedestrian movement within the land-use mix, the following features have been included:

- Multi-family development including age restricted housing within Sub-Area A and townhouse apartments within Hawleyville Center
- Retail and service oriented establishments within Areas A, Area C, and Hawleyville Center

These features result in a more favorable mix of retail, residential, and employment within a reasonable walking distance. Consequently, there will be more opportunities for Hawleyville residents, employees, and hotel guests to meet some of their daily needs (e.g. lunch and miscellaneous errands) without using an automobile. Secondary vehicle trips made during the day may be reduced. If trips within Hawleyville can be made by walking, the number of commuters willing to use transit, carpools, or vanpools will also increase.

Over the next 20-50 years, changing life-styles and economics may make transit, carpooling, and vanpooling more important transportation alternatives for Newtown. By planning Hawleyville in a way which can accommodate these alternative modes, more options will be available to

future residents and users of the area, thereby maintaining the future economic vitality and livability of the area.. In addition, as other areas are developed in this region, it may become cost-effective to operate transit service which includes Hawleyville as one of a number of "transit friendly" suburban developments.

Other Trip Reduction Techniques

An extensive literature review to identify useful sources of information regarding strategies to improve pedestrian and transit access (See Appendix) was performed to take advantage of the planned land use mix. Selected strategies designed to improve pedestrian and transit access which can be reasonably instituted in the study area are as follows.

Roadway Network/Sidewalks

Strategy: *As roadway improvements are made to potential transit corridors in Hawleyville, consideration should be given to accommodating transit, including adequate space for bus operations, direct paths for buses, pavement strength, and pedestrian access.*

The road network should be configured to provide for pedestrian and bicycle flow to and between potential transit corridors, by avoiding cul-de-sacs, dead-ends, and circuitous roadways whenever possible. Rights-of-way in residential developments should allow pedestrians to reach potential transit corridors in approximately 5 minutes. Where necessary, mid-block shortcuts should be included in the roadway design.

Planning a Pedestrian Friendly Environment

Strategy: *As site plans are developed for Hawleyville, consideration should be given to developing a pedestrian friendly environment.*

Guidelines for developing "pedestrian friendly" environments, have been explored recently by many areas of the country. In general, walkways should be lined with uses that create visual interest and should allow pedestrians to follow direct routes which are safe, well lit, easily identifiable and accessible to all people. Whenever feasible, direct access should be provided

between commercial buildings, residences, and commercial or retail uses and streets with transit stops.

Transit Service

Strategy: *As Hawleyville develops, consideration should be given to offering cost-effective transit alternatives to area residents and users.*

Three transit service concepts are reasonable options for the Hawleyville area: traditional fixed route, deviated fixed-route, or demand-responsive. The two "paratransit" service concepts - deviated fixed-route or demand-responsive - would utilize smaller vehicles as circulators to transport passengers to and from a large, HART fixed-route bus. The potentially cost-effective concept of using smaller vehicles to transport passengers to and from fixed routes to destinations in relatively low-density areas is growing in popularity throughout the country.

Carpooling and Vanpooling Incentives

In many areas of the country, major employers are required by state or local statutes to provide incentives for people to carpool or vanpool, such as:

- Having a designated transportation coordinator
- Providing commuter matching assistance
- Providing rideshare information
- Instituting a preferred parking program for carpool vehicles

Typically, large employers are targeted to provide these incentives. The Connecticut Department of Transportation is developing a Tax Incentive/ Credit Program which will be designed to offer significant incentives to employees and/or employers to encourage the use of transit (bus, car or van pool). Newtown can consider requiring employers to offer preferential, convenient parking for carpoolers and vanpoolers, especially for Area C, the hotel and corporate office use development area.

Details and analyses regarding the above strategies are contained in the Appendix. The impact that each of the strategies have on travel mode options (Single occupancy vehicle, car or vanpool, transit, walking and biking) is also contained in the Appendix.

PART V

ILLUSTRATIVE MASTER PLAN

As discussed in the preceding section, the Future Land Use Plan for the Hawleyville Area and the principles upon which it was formulated were then used to prepare a more specific Illustrative Master Plan. This Master Plan as shown in Figure 9, is focused on three primary development areas as highlighted in the Future Land Use Plan. In addition to the development areas themselves, consideration was given to linkages within the Hawleyville Area as well as to the efficient movement of vehicles through the area.

Development Area Site Design and Land Use Mix

The Illustrative Master Plan shown in Figure 9 presents more detail in accordance with the Future Land Use Plan. The mix and quantity of development is presented in Table 4. The intensity of development proposed for each of the areas is based upon a lot coverage which is less than currently permitted in the various commercial and industrial zones within the Newtown Zoning Ordinance. Table 5 presents a summary of lot coverages for the primary development areas. These lot coverages range from a high of 9% in Area A (Route 6) to a low of 2% in Area B (Hawleyville West).

A diligent process of technical and public reviews formed the Illustrative Master Plan. This plan links each of the development areas together, rather than looking at each individual development area as a separate development proposal. Key items that were incorporated into the Master Plan that will achieve this goal include the provision for:

- Pedestrian Corridors
- Transit Corridors
- Pedestrian/ Transit Nodes (Bus Stops and Pedestrian Shelters)
- Intermodal Transportation Center (Bus Stop, Park and Ride, Future Rail)
- Development Area Site Design (Location of Buildings, etc.)
- Development Area Land Use Mix

ILLUSTRATIVE MASTER PLAN
NEWTOWN, CONNECTICUT

Barakos-Iandino Design Group

FIGURE 9

TABLE 4
Illustrative Master Plan - Mix and Quantities

Area A Route 6	150 units of Assisted Living Residential 200,000 Square Feet Medical Office 185 Age Restricted Townhouses	20,000 Square Feet Restaurant 70,000 Square Feet Retail
Area B Hawleyville West	150 units of Assisted Living Residential 50,000 Square feet Office/Research	
Area C Route 25/Route84 Interchange	26 Units Single Family Housing 600,000 Square Feet Corporate Office	250 Room Hotel/Conference Center 30,000 Square Feet Retail
Area D Old Hawleyville Road*	20 Housing Units	
Area E Barnabas Road*	300,000 Square Feet Industrial/Distribution	
Area G Hawleyville East	30,000 Square Feet Office 30,000 Square Feet Retail	24 Townhouses

*not detailed in Master Plan Drawing

TABLE 5
Lot Coverages

		Building Coverage[1]		Total Coverage[2]	
Location	Lot Area	Square Feet	Percent	Square Feet	Percent
Area A	5,508,729	497,600	9%	1,441,131	26%
Area C	5,423,437	258,659	4.8%	1,375,732	25%
Hawleyville West	2,999,439	63,982	2%	237,202	8%
Hawleyville East	677,378	47,000	7%	188,614	28%

[1] Area of building "footprint".
[2] Area of building "footprint" plus impervious surfaces , i.e.: driveways, parking lot, etc.

Pedestrian Corridors

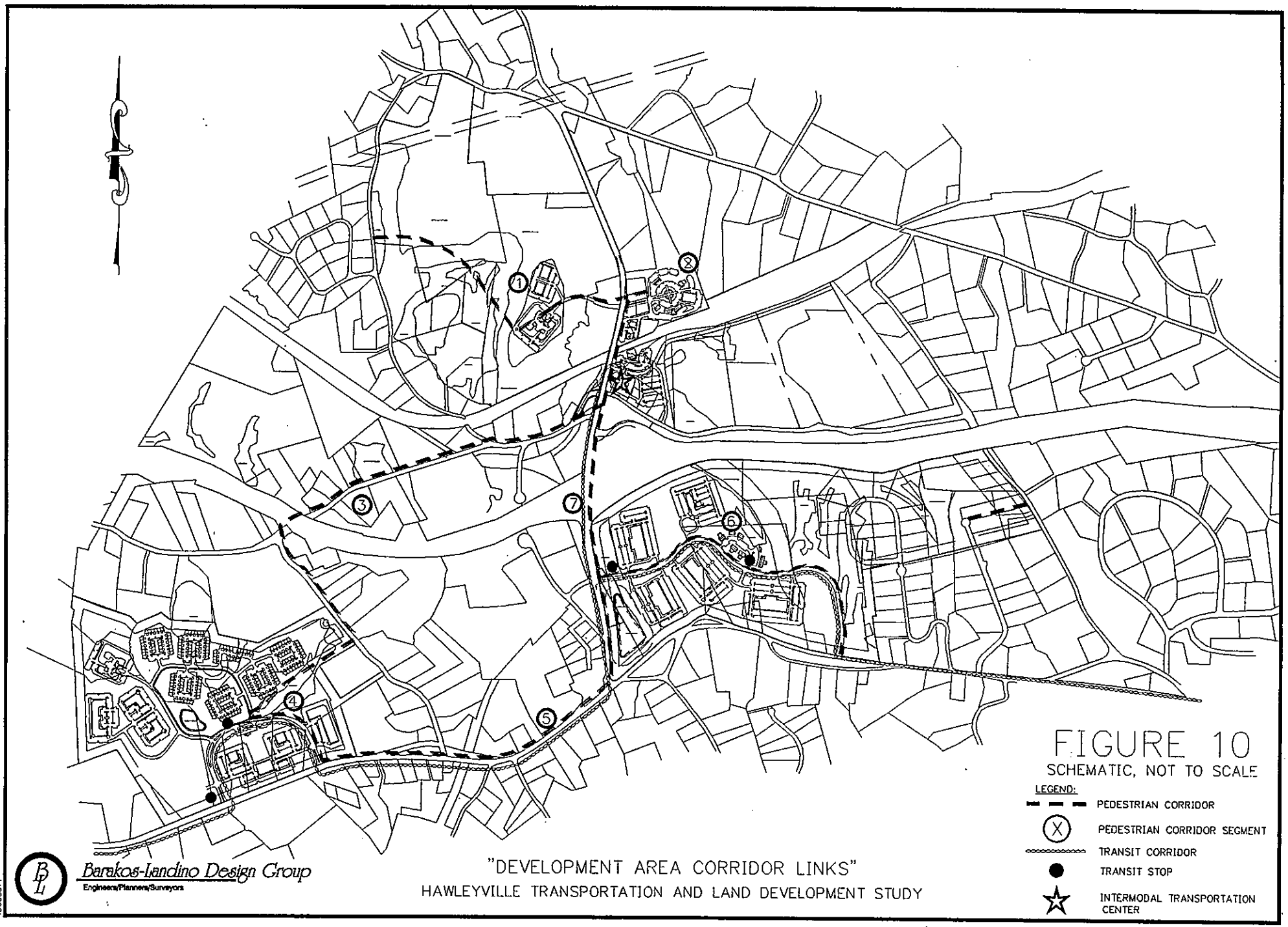
Figure 10 identifies potential inter-area and intra-area pedestrian/bicycle corridors in the study area. Each corridor has been assigned a number for identification purposes. The corridors are located along existing arterials (Route 6, Route 25) as well as through undeveloped areas. The corridors located in undeveloped areas are conceptual at this point, and will need to be considered as a key design feature within the specific site plan review process. The corridors will help minimize secondary travel between development areas. It is assumed that additional internal pedestrian/bicycle corridors will be included with all private development site plans for private and/or public access routes within the developments parcels.

A detailed description of each pedestrian network segment, identified by number on Figure 10, is presented in the Appendix.

Transit Corridors

Traditional fixed-route service is currently offered to Newtown on HART Bus Route #2 which operates from Danbury via Route 6 to the Hawleyville Park and Ride Lot located on Route 25, north of I-84. As long as HART continues to operate fixed route service into Hawleyville, it would make sense to reroute the fixed-route buses to improve access to the study area. Although there would be virtually no additional costs to HART, the town of Newtown would probably be assessed for this fixed route service.

With minor modifications, the existing Bus Route #2 service could probably be rerouted to offer service within 1/4 mile of most sections of the study area which are proposed to include employment and retail developments. Currently, only two morning trips and one afternoon trip operate to Hawleyville during the peak period. This is very minimal peak hour service and severely limits the number of potential passengers that would utilize the service. Consideration should be given as development occurs for midday service to be offered every 60 minutes to the study area.


1
2
3
4
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6
7
FIGURE 10
SCHEMATIC, NOT TO SCALE
LEGEND:
PEDESTRIAN CORRIDOR
PEDESTRIAN CORRIDOR SEGMENT
TRANSIT CORRIDOR
TRANSIT STOP
INTERMODAL TRANSPORTATION CENTER
Barakos-Landino Design Group
Engineers/Planners/Surveyors
"DEVELOPMENT AREA CORRIDOR LINKS"
HAWLEYVILLE TRANSPORTATION AND LAND DEVELOPMENT STUDY
TD605814

In the long-term, the feasibility of connecting a small paratransit vehicle to the HART fixed-route bus should be examined. HART planners are currently exploring the feasibility of utilizing small paratransit vehicles to connect low-density areas to fixed-route transit service. For example, if the rail extension to New Milford is implemented, HART is planning to offer subscription service from New Milford to the station using small vehicles. Serving Hawleyville with either deviated fixed-route or demand responsive van service would be consistent with this service philosophy.

While demand for transit service to Hawleyville is low, offering demand-responsive service from the east-end of the HART route would be appropriate. As demand grows for transportation within Hawleyville, there may be sufficient ridership in the peak commute periods to warrant a deviated fixed-route through the area, thereby eliminating the need for passengers to call in advance for a ride. If an additional van or small bus needs to be added to the Newtown SweetHART fleet, any excess capacity on the vehicle could be used to serve other trips within the town. Options regarding cost effective transit alternatives are presented in the Appendix.

Pedestrian/ Transit Nodes

Proposed transit stop locations have been identified on Figure 10. The locations were selected to best serve potential users and to maximize the efficiency of the proposed routes. As development occurs deep within each development area, the location of the transit stop can be moved internally within each development to provide the most efficient access from Route 25 or Route 6.

Intermodal Transportation Center

Figure 10 depicts the location of the future Intermodal Transportation Center in the vicinity of the existing Park and Ride lot. This is an ideal location since it is currently established as a park and ride facility with excellent access to I-84, being located adjacent to the rail line, and located adjacent to the Hawleyville Center. It is relatively centralized and is proposed to be "linked" to other development areas. As currently proposed, the transportation center will be an expansion of the existing park and ride facility: with an increase in parking spaces, from approximately 100

to 300 spaces; the provision of a protected pedestrian waiting area; and provisions for safe bus circulation and boarding. If needed in the future, the proximity to the adjacent rail line can be taken advantage of to provide a rail commuter station.

Development Area Site Design and Land Use Mix

The relative location of the future development areas are shown in Figure 10. The location of the buildings and land use mix within each development area were designed to favor pedestrian, bicycle, ridesharing, and transit use. This is detailed in the next chapter.

PART VI

ILLUSTRATIVE DEVELOPMENT PLANS

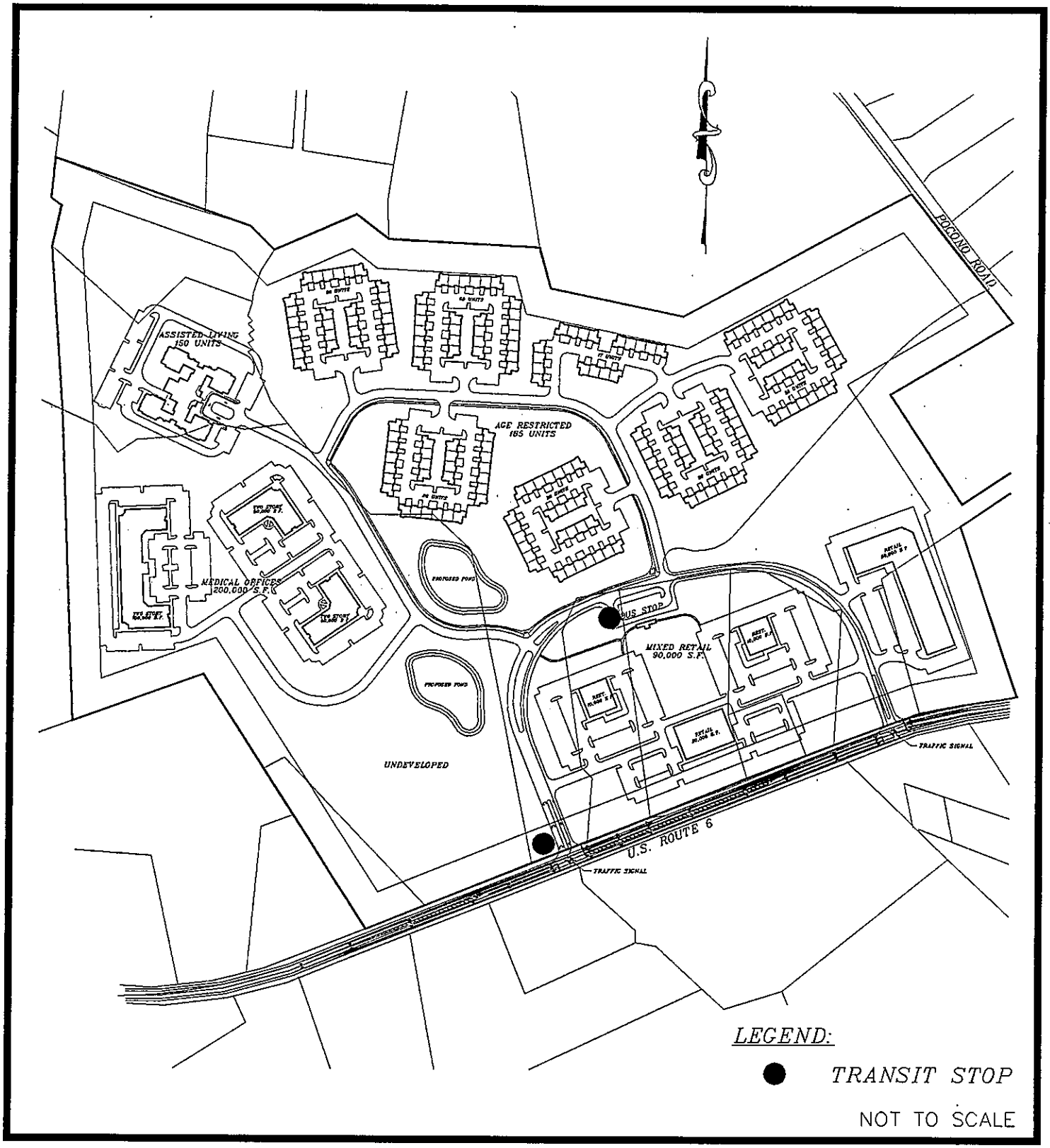
Subsequent to developing the Master Plan for the entire study area, each of the development areas was prepared in more detail in order to incorporate more specific design features. Figures 11, 12, and 13 depict Areas A, C, and Hawleyville Center, respectively, which physically organizes the proposed long term market based program of development on the landscape.

AREA A

The site plan for this area is organized around the principle of mixed use development with an emphasis on assisted living and age restricted residences as well as office space with a focus on medical services. The portion of the area closest to Route 6 is proposed for retail, service and restaurant use. This area will serve both residents and employees as well as other customers within the market area. However, the design of this area with limited access and substantial landscaping is much different than traditional strip development found along state routes such as Route 6. In addition, the proposed site plan takes advantage of the existing topography to create interesting settings for the various use components as well as the use of natural run-off detention areas as site amenities. Access into Area A from Pocono Road is limited to emergency vehicles to limit impact on adjacent residential areas. In addition, the portions of the site closest to existing residences are proposed for residential use with substantial buffer areas. Pedestrian linkages are proposed throughout the site and to Pocono Road.

AREA C

This area has long been proposed for corporate office use due to its proximity to the interchange and prominence created by the site topography. The site plan shows this corporate office use in combination with a hotel/conference center. A hotel/conference center would place similar value on the interchange location. In addition, on-site retail and service uses are proposed to be developed at a ratio of 5% of the corporate office development. This retail and service use is intended to be accessory to the main development and is not intended to draw any significant



ILLUSTRATIVE DEVELOPMENT AREA "A" PLAN
NEWTOWN, CONNECTICUT

Barrakos-Landino Design Group

FIGURE 11

ILLUSTRATIVE DEVELOPMENT AREA "C" PLAN
NEWTOWN, CONNECTICUT

Barrakos-Iandino Design Group

FIGURE 12

TD600018

business from the balance of the market area. The rear or eastern portion of the parcel is proposed for residential use at a density similar to adjacent existing residential areas.

Primary access to the site would be from Route 25 at a major, signalized driveway. This access point is similar to the one proposed as part of previous development proposals for the site. A second point of access would be provided to Route 6. As discussed elsewhere in this report, transit routes would be accommodated within the internal road system. At the earliest stage of development, transit service might be limited to a stop at the main driveway on Route 25.

In terms of building coverage, the proposed site plan is much less dense than previous proposals for the site. This is due to the fact that the site area has been expanded from previous proposals and 3 story buildings rather than 2 story buildings are proposed. However, the buildings are sited with respect to the slopes in a manner which limits the actual height to 2 stories on the high side. This allows less building coverage as well as less total coverage when parking areas are added.

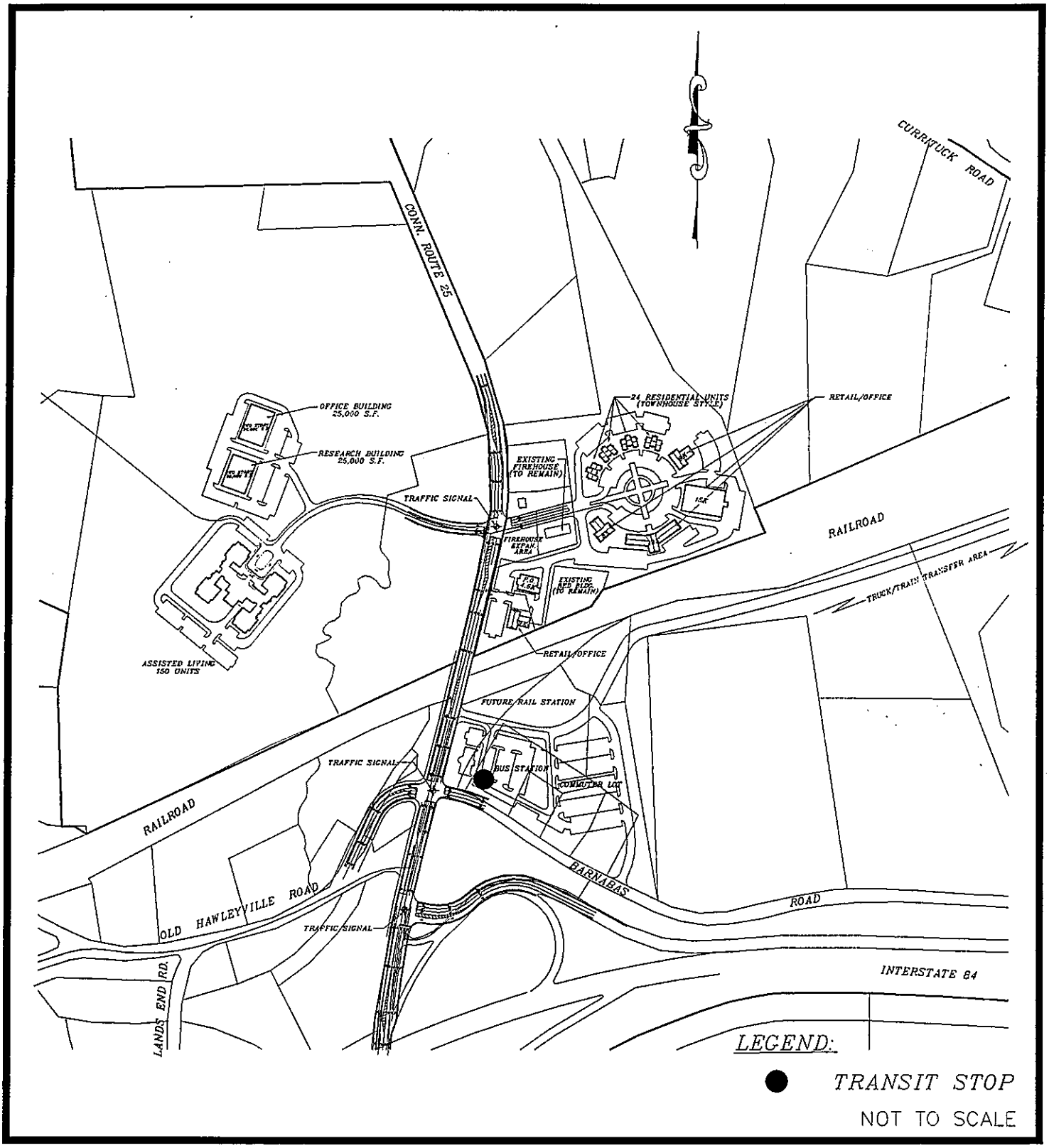
Overall, the development of this site would result in a first class corporate office environment enhanced by the hotel/conference center. The on-site accessory retail and service uses would limit traffic generated for convenience trips by employees and hotel guests. The limited access and proximity to the interchange would reduce traffic impacts on the adjacent street network. The sensitive architectural treatment, low coverage and transition to adjacent residential areas with like residential development will buffer existing neighborhoods.

HAWLEYVILLE CENTER

The site plan for this area is comprised of two components on either side of Route 25. The Hawleyville West area is to the west of Route 25 and includes a portion of the previously designated Area B. The Hawleyville East area is to the east of Route 25 and includes the area previously designated as Area G. The concept for this combined area is to create a traditional compact New England village center with a mix of uses found in such centers. The proposed site plan accommodates some existing uses while respecting the fragile environmental conditions in the area.

The Hawleyville West portion of the site plan is focused on the approximately 12 acre area which is surrounded by extensive wetlands. The area is proposed for development either for office use or assisted living or a combination thereof. The maximum intensity of development for office use would be similar to that allowed in the current Professional Zone in the Newtown Zoning Regulations which is 9,000 square feet per acre. This density would result in approximately 100,000 square feet of development on the 12 acres. A combination of uses might result in 50,000 square feet of office and 100 units of assisted living. The primary controlling factors on any development on this site would be the capacity of on-site sewer systems since this area is not proposed to receive public sewers, and water service.

This area of development would be accessed from Route 25 by one entry drive which would involve a wetland crossing. This entry drive as well as other locations on the site would accommodate pedestrian connections to Route 25 and the Hawleyville East area. In addition, pedestrian connections would be provided to the west and north to the hinterlands. This hinterland area is proposed for low density residential development in accordance with existing zoning and development patterns in the Farrell Road area. There would also be significant open space areas protected from development in compliance with wetland regulations. Therefore, the overall character of the Hawleyville West area combined with the hinterlands would be one of open space and nature conservancy.



ILLUSTRATIVE DEVELOPMENT HAWLEYVILLE CENTER PLAN
NEWTOWN, CONNECTICUT

Barakos-Iandino Design Group

FIGURE 13

The Hawleyville East area is proposed for an intriguing combination of civic, service, retail, industrial and residential uses with an emphasis on multi-modal transportation. The traditional civic uses represented by the Hawleyville Fire Company and the Post Office would be retained and strengthened. This strengthening would result from a potential expansion of the fire station as well as the relocation of the Post Office into a larger, multi-use structure. The light industrial use in the existing "red building" on the site would be retained. The lumber transfer use is proposed to be shifted to the east and south along the rail right-of-way with linkages to the Barnabas Road industrial area. Future access to this area would be provided from Route 25 adjacent to the tracks and separate from the Village Center functions.

The heart of the area is proposed for a combination of service, retail and residential uses configured around a traditional New England village green. This development is intended to serve the residents of Hawleyville as well as adjacent areas in Brookfield. There would also be some customer base related to the proximity to the Route 84 interchange. However, no fast food, gas stations or other interchange type uses are proposed. A logical anchor retail use would be a drugstore such as a Walgreen's or a Rite Aid. These types of stores are very common as the anchor of a neighborhood shopping area as envisioned in Hawleyville. Other retail and service tenants would be those types typically found in a village center such as insurance and real estate offices, personal care establishments and specialty shops. The Post Office would be a continued use for this area.

The residential portion of the area would be townhouses directed towards young singles or couples as well as empty nesters. This housing could provide affordable rental units at a convenient location. This type of housing is in limited supply in Newtown. The density of this residential development is limited by design and by the fact that the area will be serviced by on-site sewers. There is no proposal to extend public sewers to this area.

As mentioned earlier, an important aspect of Hawleyville Center will be the potential for multi-modal transportation. Currently, there is a Park and Ride lot in the area which is intended to facilitate car pooling. This lot is also the end of the line for the HART bus route serving

Newtown. The site plan proposes an expansion of this area to not only accommodate the bus and commuter parking functions, but also to accommodate a station for rail passengers if the use of the rail lines for this purpose becomes feasible some time in the future. In addition, this transportation center area would integrate access to the lumber transfer use to the east and segregate this traffic from the other village center uses.

In summary, the Hawleyville Center concept which has been woven throughout the strategy for the entire area is fully implemented by the features displayed in the site plans. The strong potential exists for development which in terms of architecture, use and intensity of development is consistent with the character of the area while offering the opportunity for development and services to the residents of Hawleyville and adjacent areas.

PART VII

ILLUSTRATIVE COMPUTER GRAPHIC IMAGES

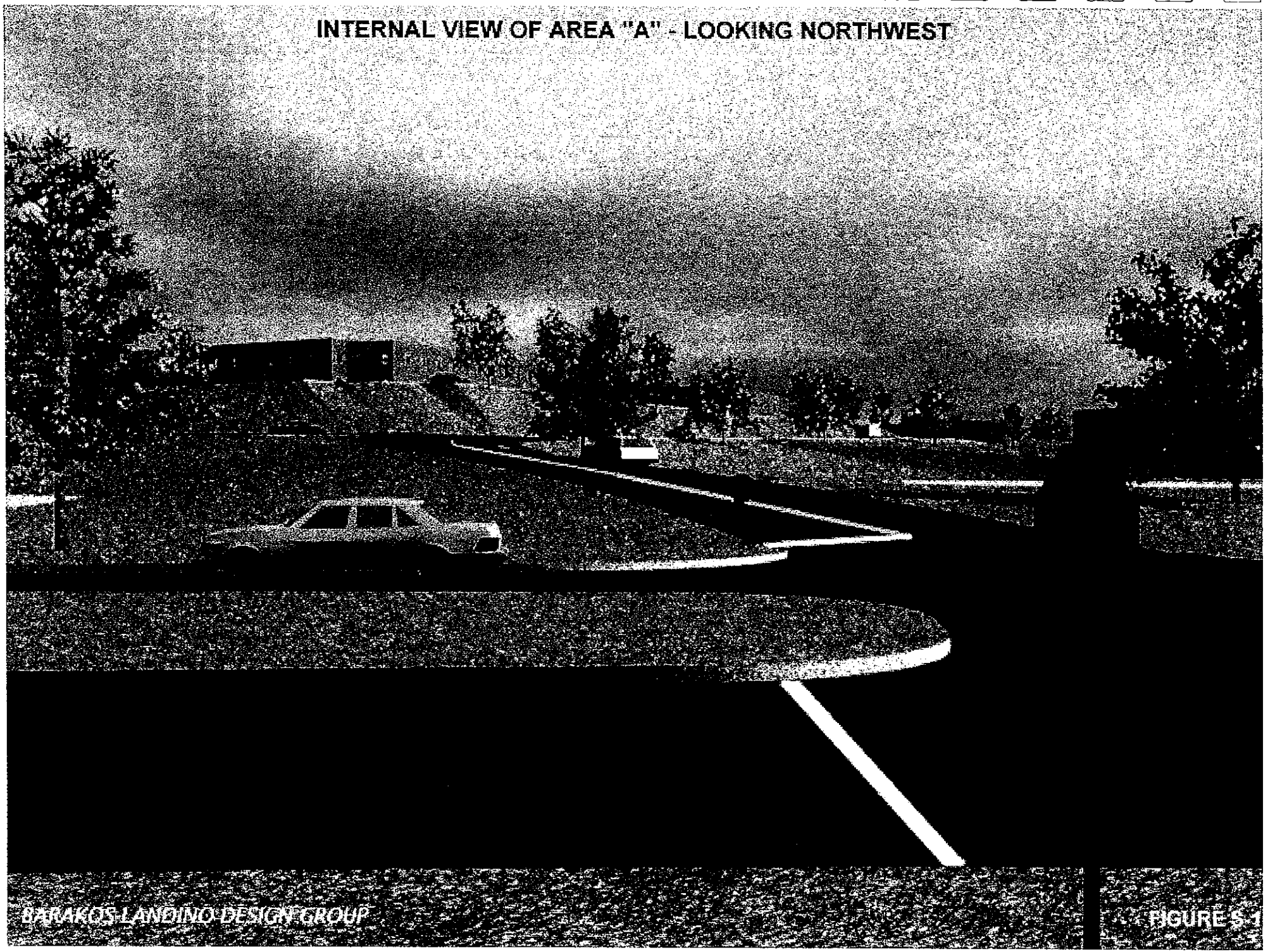
Computer enhanced images of select development locations discussed in the previous chapter were developed to visually describe the character, scale and spatial relationships of the proposed uses under the ultimate long term scenario. These images will provide property owners, decision makers and interested residents a better opportunity to understand the visual impact of the planned development within the study area.

Images were developed for Area A, Area C, and Hawleyville Center East. Area A is located in the Southwest portion of the study area and is more or less bounded by the Bethel Town line on the west, Old Hawleyville road on the north, Pocono Road on the east, and Route 6 on the south. Area C is located in the southeastern portion of the study area and is bordered by Interstate 84 on the north, Route 25 on the west, and Route 6 on the south. Hawleyville Center East is located in the northwesterly quadrant of the intersection of Route 25 with the Houstatonic Railroad Line.

Area A (Figure S-1) - North of Route 6, South of Old Hawleyville Road and West of Pocono Road

This image is 100 percent computer generated in order to provide an indication of how the proposed development might appear if developed in accordance with the Illustrative Site Plan. The view is from a location approximately 700 feet within the site from Route 6 looking in a northwesterly direction. The building on the left side of the image on the hill is one of the medical office buildings. Immediately right of center is a glimpse of the assisted living facility; and to the far right is shown a portion of the elderly housing. As discussed previously, the topography of this site provides the possibility for an interesting relationship of buildings and attractive site layout.

INTERNAL VIEW OF AREA "A" - LOOKING NORTHWEST



BAMAKO'S LANDINO DESIGN GROUP

FIGURE S-1

Area C (Figure S-2) - North of Route 6, East of Route 25 and South of Interstate 84

This image was produced with a real-time field view with computer enhanced graphics. The view is from a point on Covered Bridge Road located approximately 100 feet west of Route 25 looking in an easterly direction up the main site driveway into the office park. The building on the left is one of the four corporate style offices with a parking field in front. The smaller building located immediately to the right is one of the retail/service buildings which is located approximately 1500 feet from the point of view. To the far right is another corporate building. A median divided accessway is shown aligned opposite Covered Bridge Road gently rising to the background. The topography of the site limits the extent of development viewed from Route 25.

Hawleyville Center East (Figure S-3) - North of the Housatonic Railroad and East of Route 25

This image was also produced with a field camera view from a point located in the southwest corner of Route 25 and the railroad tracks. The view is facing the northeast showing a retail commercial building in center with frontage along the east side of Route 25. In the Illustrative Site Plan, this building is proposed as a possible location for the relocated Post Office. The scale and architectural style of this building is intended to be compatible with the surrounding area and to articulate the village center concept. A landscaped, open space area is shown for the area between the railroad tracks and the proposed building to provide a transition into the village center. To the right is the existing "red barn" building which will be preserved and become part of the overall development. It should be noted that the scale of the proposed development and this building have much in common.


AREA "C" SITE ENTRANCE
LOOKING EAST ACROSS ROUTE 25
FROM COVERED BRIDGE ROAD
BARAKOS-LANDINO DESIGN GROUP
FIGURE S-2

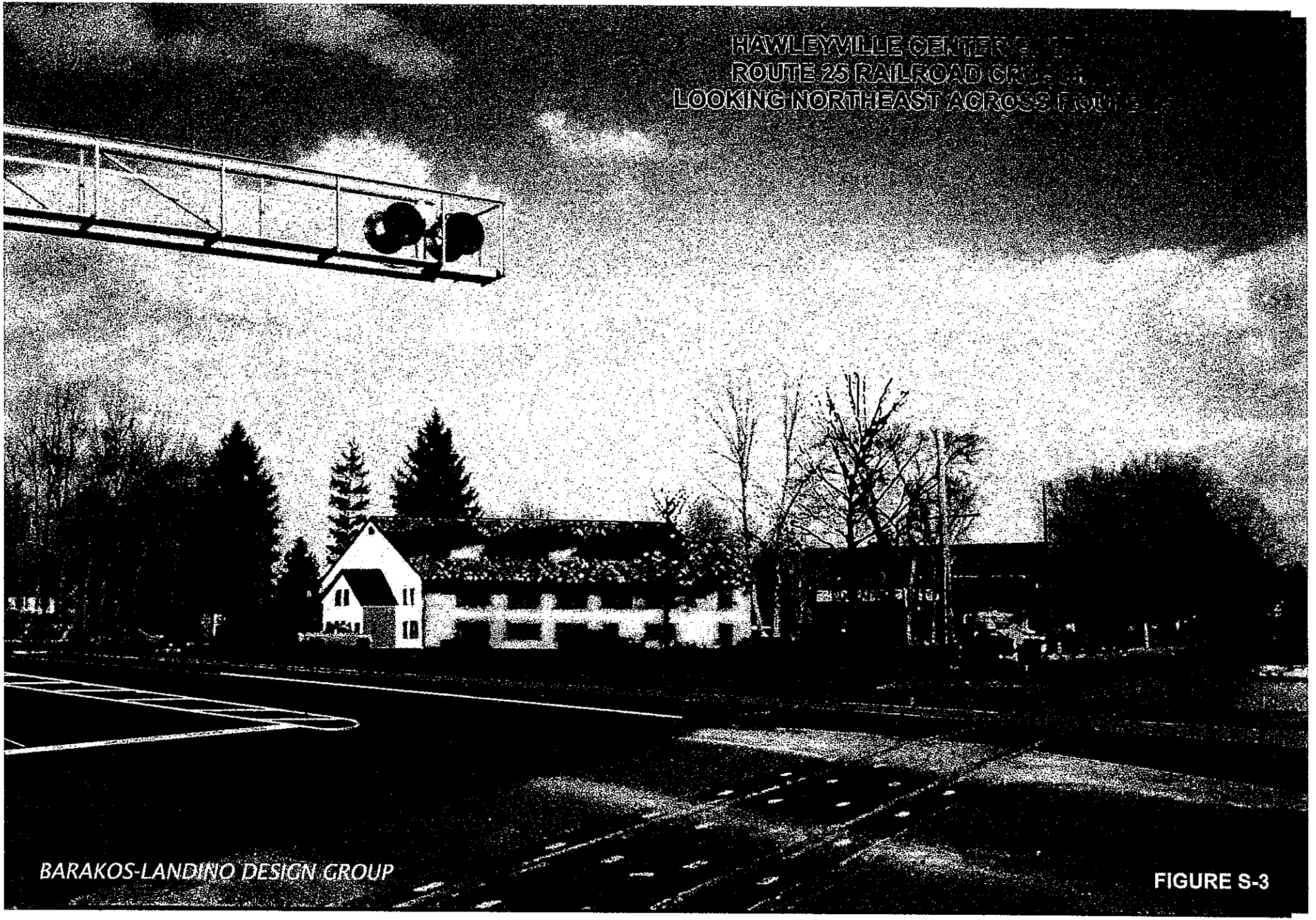

HAWLEYVILLE CENTER
ROUTE 25 RAILROAD CR
LOOKING NORTHEAST ACROSS
BARAKOS-LANDINO DESIGN GROUP

FIGURE S-3

PART VIII

FUTURE TRANSPORTATION IMPROVEMENTS

Traditional traffic studies use the development allowed by local zoning or the municipal plans of development for the additive process of determining total future trip generation. This study was based on a market driven analysis to understand the market forces which will shape the future development of this area.

Analysis

Based on the market driven development scenarios presented above, future traffic projections for the short, mid, and long term scenarios were developed. The traffic analysis presented represents a "second" projection of future traffic volumes. The "first" projection of future traffic volumes were presented at an October, 1996 Advisory Committee meeting. These projections were also based on a market driven demand, but geared towards more commercial development located north of Interstate 84. The "second" projections of future traffic volumes are based on a limited amount of commercial development located to the north of I-84 and the assumption of not extending public sewer service north of I-84. Since the submission of the Interim Report in December of 1996, additional changes and "fine tuning" of the anticipated development has occurred. The traffic impacts resulting from the Illustrative Master Plan described in the previous chapter was analyzed.

Anticipated background traffic volumes were developed for each one of the three development scenarios; short term (five years), mid term (10 years), and long term (20 years). The existing traffic volumes were increased at an annual growth rate of 1.5 % per year to reflect off-site regional growth trends and general increases in through trips.

Traffic associated with each of the anticipated market driven scenarios was determined and is shown in Table 6. The development traffic was then distributed and added to the background traffic volumes developed above for their respective scenarios. Figures 14A through 16B depict the anticipated short, mid and long term traffic volumes.

For comparative purposes, the future traffic that would be generated under the existing zoning regulations and the expansion of industrial uses in the Study Area as proposed in the Newtown Plan of Development were determined as shown in Table 7. When compared, market driven development, which forms the basis of this study, will generate substantially less trips than would be the case under current zoning or Plan of Development recommendations.

Capacity analysis were performed for the weekday morning and afternoon peak hour at each one of the twenty studied intersections, as well as the mainline section of Interstate 84, and the Interstate 84 ramp merge and diverge areas (area where the on or off ramp meets the Interstate 84 mainline section, not the street intersection of the ramp roadway with Route 25) for each future scenario utilizing existing roadway conditions.

The adequacy, or how well each of the twenty study intersections is anticipated to operate, was determined based on methodologies described in the 1995 Highway Capacity Manual, published by the Transportation Research Board. Table 8 displays the intersection level of service results, with a definition of the resultant levels of service given at the bottom of the table. The capacity of Interstate 84 was also determined. Table 9 shows the Interstate 84 mainline traffic volumes and their corresponding resultant levels of service. The definition of the Levels of Service for the Interstate 84 mainline section differs from the Levels of Service described for the individual intersection analysis, as explained at the bottom of Table 9. Table 10 depicts the Interstate 84 ramp volumes and mainline volumes with corresponding capacity analyses results for the merge and diverge areas. The definition of the resultant Levels of Service for the merge and diverge areas is explained at the bottom of Table 10. Detailed capacity analysis calculations are on file at the Housatonic Valley Council of Elected Officials offices.

TABLE 6
A.M. PEAK HOUR TRIP GENERATION SUMMARY

(Exit 9 Plan)

SCENARIO	AREA	USE	AMOUNT	A.M. PEAK HOUR ESTIMATED TRIPS[1]			
				IN	OUT	TOTAL	CUMULATIVE TOTAL
SHORT	A	MEDICAL OFFICE	50000 sf	98	29	127	
		ASSISTED LIVING	150 rms	21	12	33	
	C	CORPORATE	300000 sf	381	29	410	
		RESIDENTIAL	26 units	7	19	26	
	E	INDUSTRIAL	100000 sf	91	10	101	
Sub-Total				598	99	697	697
MID	A	MEDICAL OFFICE	150000 sf	259	78	337	
		TOWNHOUSES	185 units	15	69	84	
		RESTAURANT	20000 sf	17	1	18	
	B	ASSISTED LIVING	150 units	21	12	33	
		OFFICE	50000 sf	99	12	111	
	C	CORPORATE	300000 sf	381	29	410	
		HOTEL	250 rooms	99	66	165	
		RETAIL[2]	30000 sf	50	30	80	
	D	RESIDENTIAL	20 s.f. units	5	16	21	
	E	INDUSTRIAL	100000 sf	91	10	101	
	G	OFFICE	15000 sf	39	5	44	
		RETAIL[2]	15000 sf	33	20	53	
Sub-Total				1109	348	1457	2154
LONG	A	RETAIL[2]	70000 sf	83	49	132	
	E	INDUSTRIAL	100000 sf	91	10	101	
	G	OFFICE	15000 sf	39	5	44	
		RETAIL[2]	15000 sf	33	20	53	
		TOWNHOUSES	24 units	3	13	16	
Sub-Total				166	48	214	2368
Grand Total							**2368**

[1] The total amount of traffic or number of vehicular trips that a given land use will generate based on its size

[2] Actual new retail trips will be less than stated. "Pass-by" trips and on-site "Captured" trips will reduce these numbers.

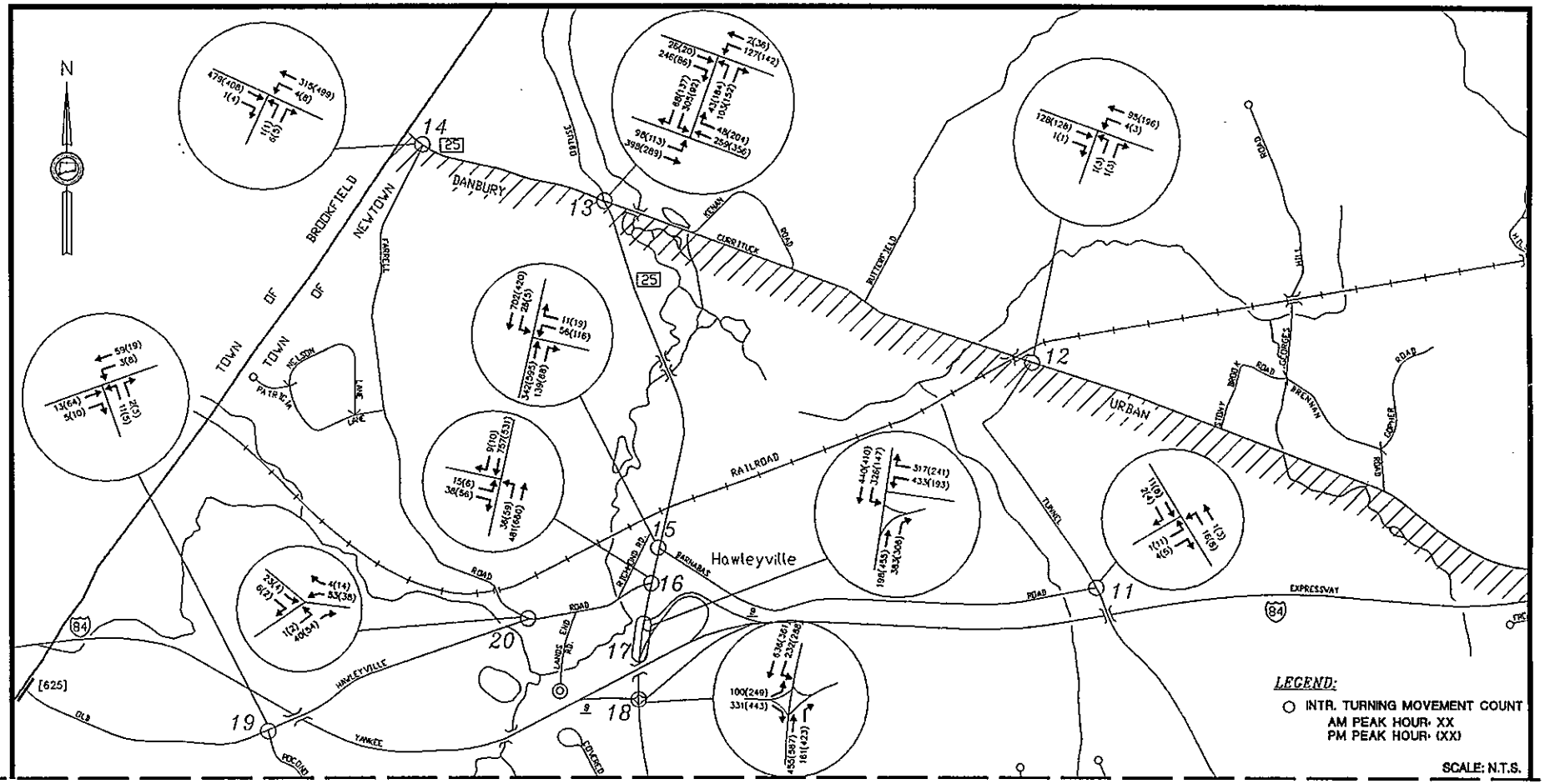
TABLE 6 (Continued)
P.M. PEAK HOUR TRIP GENERATION SUMMARY

(Exit 9 Plan)

SCENARIO	AREA	USE	AMOUNT	P.M. PEAK HOUR ESTIMATED TRIPS[1]			
				IN	OUT	TOTAL	CUMULATIVE TOTAL
SHORT	A	MEDICAL OFFICE	50000 sf	58	137	195	
		ASSISTED LIVING	150 rms	15	22	37	
	C	CORPORATE	300000 sf	44	358	402	
		RESIDENTIAL	26 units	21	12	33	
	E	INDUSTRIAL	100000 sf	15	93	108	
Sub-Total				153	622	775	775
MID	A	MEDICAL OFFICE	150000 sf	179	416	595	
		TOWNHOUSES	185 units	68	36	104	
		RESTAURANT	20000 sf	107	46	153	
	B	ASSISTED LIVING	150 units	15	22	37	
		OFFICE	50000 sf	19	93	112	
	C	CORPORATE	300000 sf	44	358	402	
		HOTEL	250 rooms	99	85	184	
		RETAIL[2]	30000 sf	152	152	304	
	D	RESIDENTIAL	20 s.f. units	17	9	26	
	E	INDUSTRIAL	100000 sf	15	93	108	
	G	OFFICE	15000 sf	8	38	46	
		RETAIL[2]	15000 sf	98	98	196	
Sub-Total				821	1446	2267	3042
LONG	A	RETAIL[2]	70000 sf	261	262	523	
	E	INDUSTRIAL	100000 sf	15	93	108	
	G	OFFICE	15000 sf	8	38	46	
		RETAIL[2]	15000 sf	98	98	196	
		TOWNHOUSES	24 units	14	7	21	
Sub-Total				396	498	894	3936
Grand Total							**3936**

[1] The total amount of traffic or number of vehicular trips that a given land use will generate based on its size

[2] Actual new retail trips will be less than stated. "Pass-by" trips and on-site "Captured" trips will reduce these numbers.



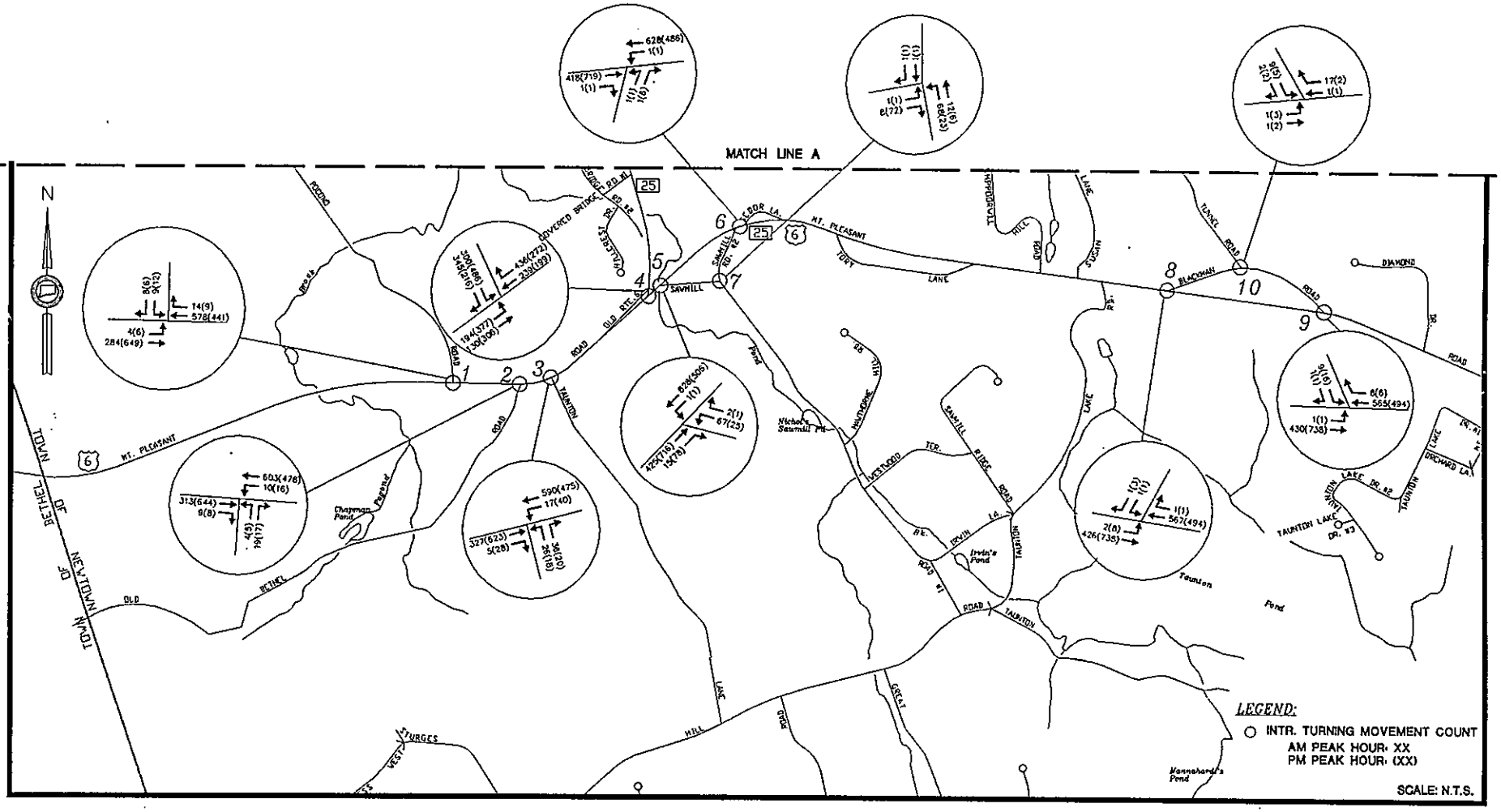
4/30/97

SCENARIO 1 - SHORT TERM TRAFFIC VOLUMES
HAWLEYVILLE TRANSPORTATION AND DEVELOPMENT STUDY
INTERSTATE 84, EXIT 9 - HAWLEYVILLE
NEWTOWN, CONNECTICUT

Barakos-Landino Design Group

FIGURE 14A

TD505809



SCENERIO 1 - SHORT TERM TRAFFIC VOLUMES

HAWLEYVILLE TRANSPORTATION AND DEVELOPMENT STUDY

INTERSTATE 84, EXIT 9 - HAWLEYVILLE

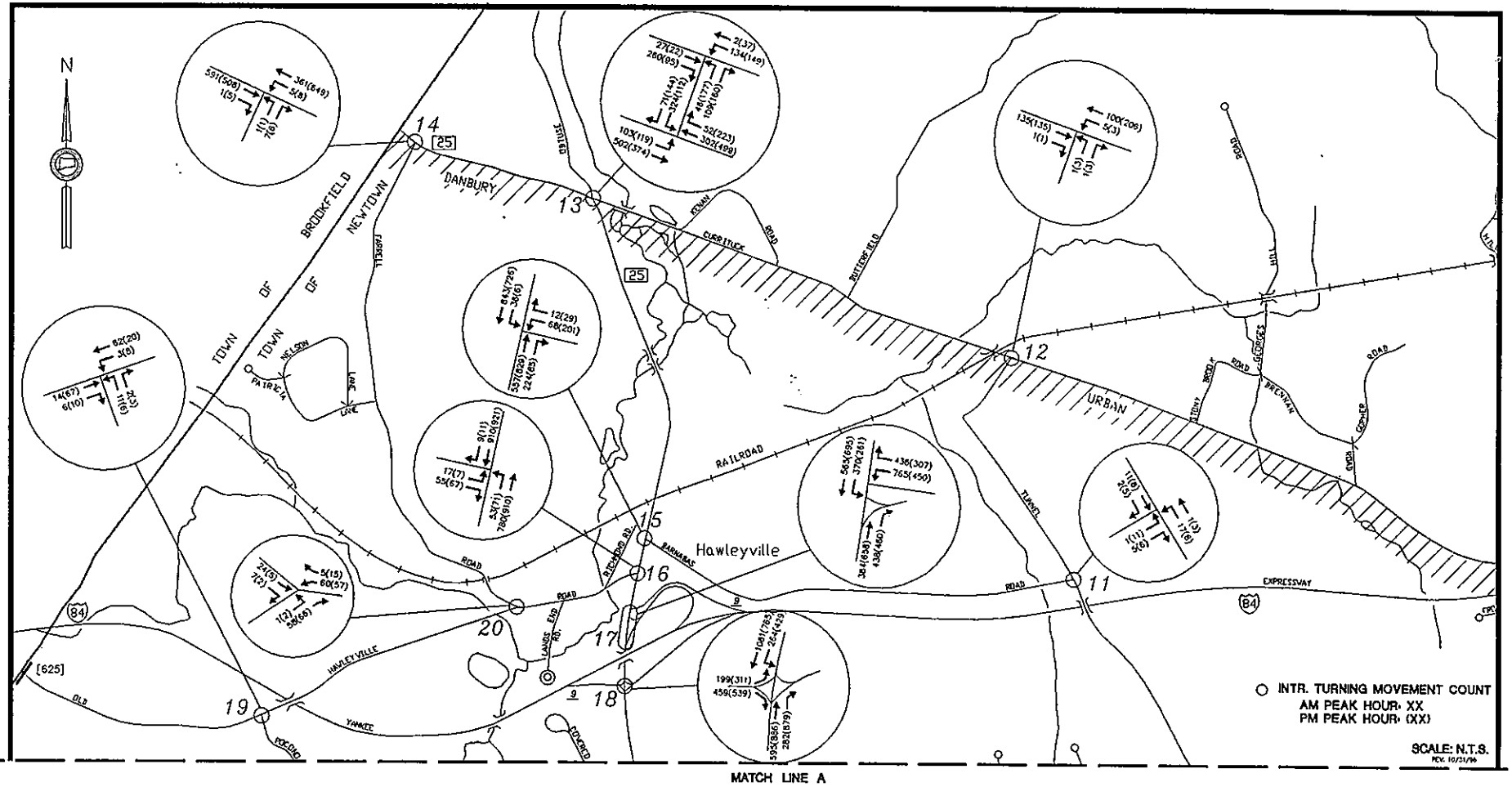
NEWTOWN, CONNECTICUT

4/30/97

Barakos-Landino Design Group

FIGURE 14B

TD605809



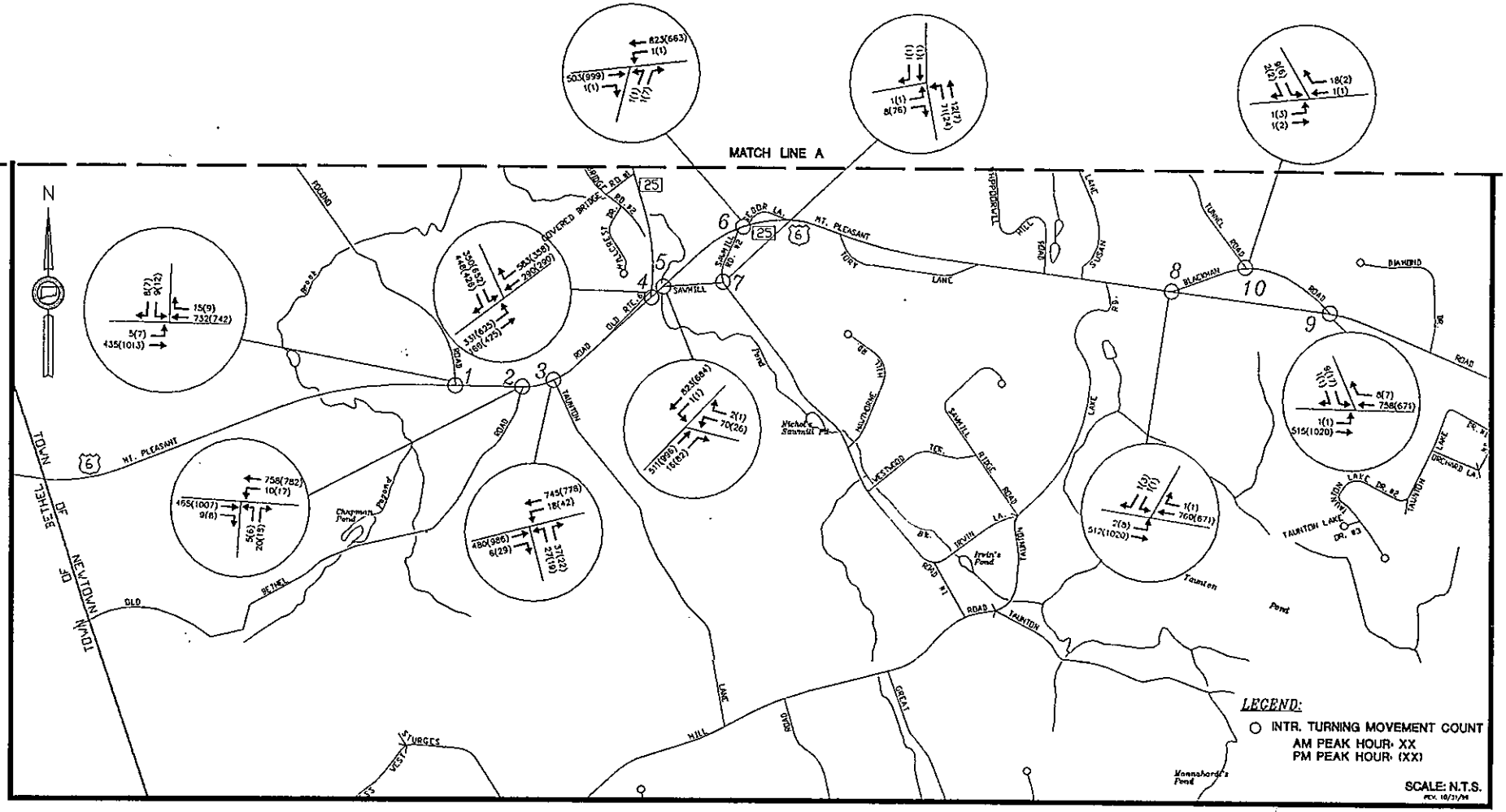
SCENARIO 2 - MID TERM TRAFFIC VOLUMES
HAWLEYVILLE TRANSPORTATION AND DEVELOPMENT STUDY
INTERSTATE 84, EXIT 9 - HAWLEYVILLE
NEWTOWN, CONNECTICUT

4/30/97

Barakos-Landino Design Group

FIGURE 15A

TD605809



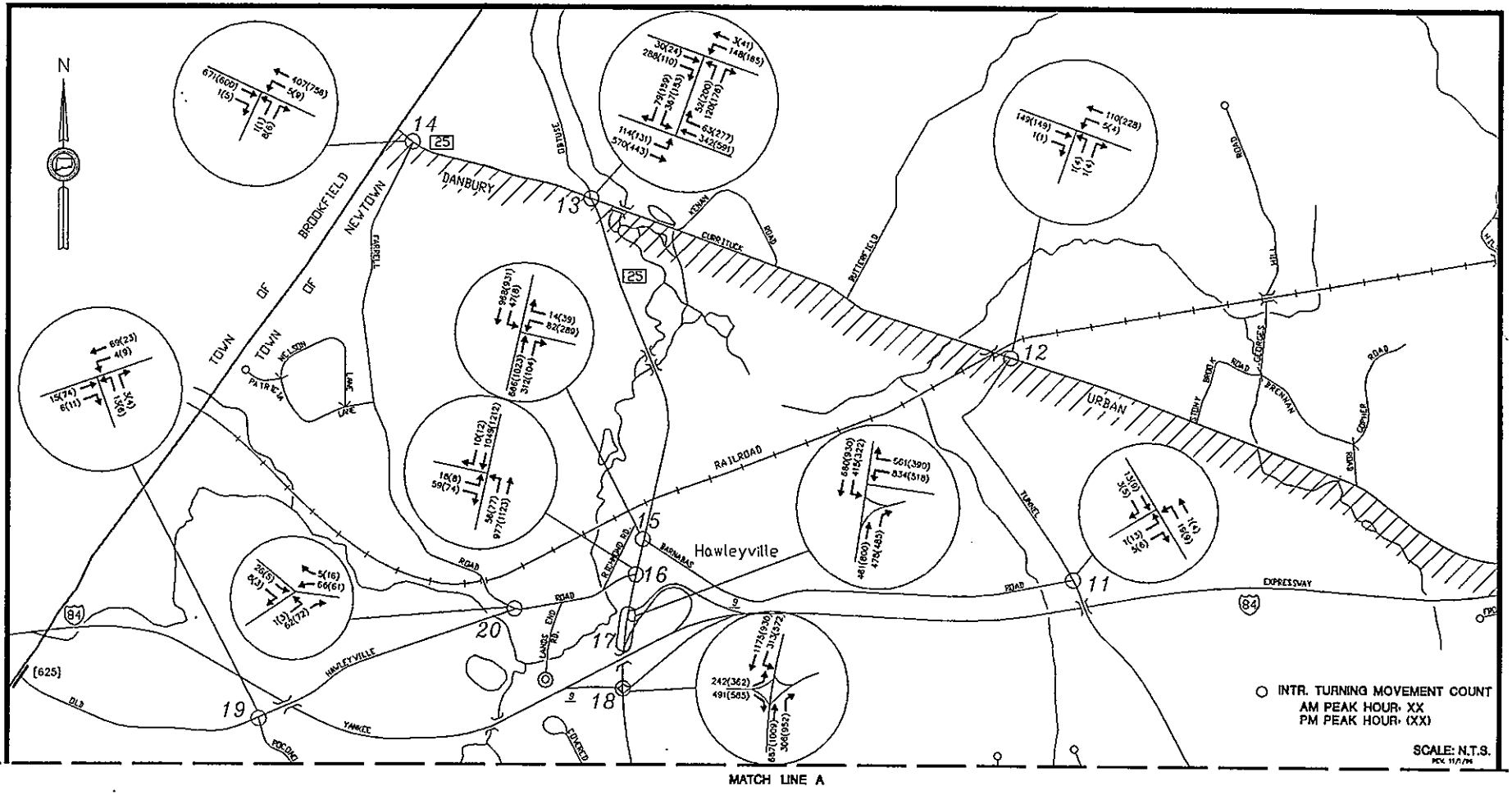
4/30/97

SCENERIO 2 - MID TERM TRAFFIC VOLUMES
HAWLEYVILLE TRANSPORTATION AND DEVELOPMENT STUDY
INTERSTATE 84, EXIT 9 - HAWLEYVILLE
NEWTOWN, CONNECTICUT

Barakos-Landino Design Group

FIGURE 15B

TD605809



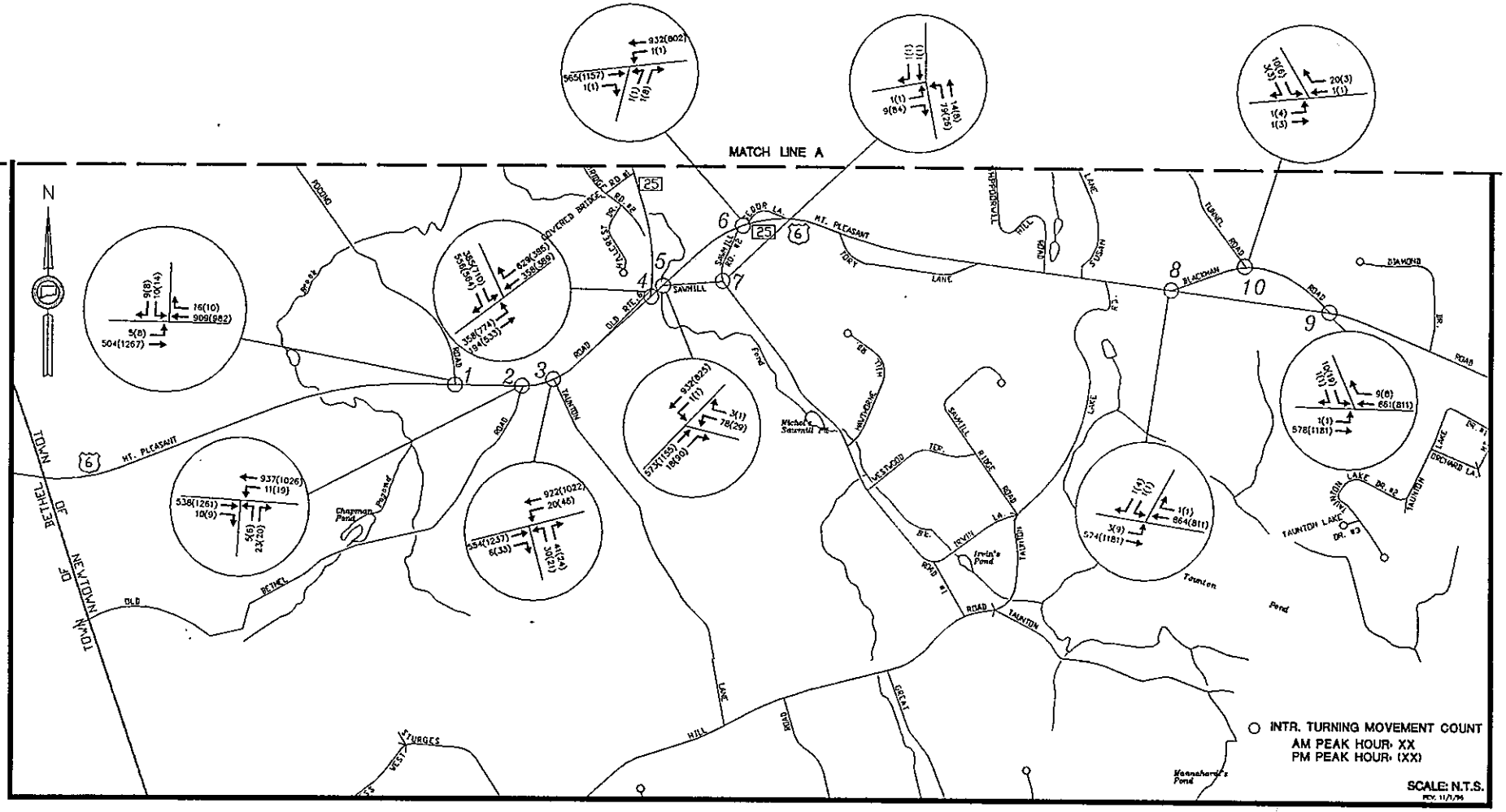
SCENARIO 3 - LONG TERM TRAFFIC VOLUMES
HAWLEYVILLE TRANSPORTATION AND DEVELOPMENT STUDY
INTERSTATE 84, EXIT 9 - HAWLEYVILLE
NEWTOWN, CONNECTICUT

4/30/97

Barakos-Landino Design Group

FIGURE 16A

TD605809



SCENERIO 3 - LONG TERM TRAFFIC VOLUMES
HAWLEYVILLE TRANSPORTATION AND DEVELOPMENT STUDY
INTERSTATE 84, EXIT 9 - HAWLEYVILLE
NEWTOWN, CONNECTICUT

4/30/97

Barakos-Landino Design Group

FIGURE 16B

TD605509

TABLE 7
TRIP GENERATION COMPARISON

		Estimated Trips A.M. Peak Hour	P.M. Peak Hour
EXISTING ZONING[1]	**AMOUNT**		
Industrial(M-2a, M-1, M-4)	2,027,723 SF	2210	2510
Retail(B-2)	661,524 SF	500	2200
Office(P)	112,494 SF	210	200
Residential	400 Single Family	275	375
Total		**3195**	**5285**
PLAN OF DEVELOPMENT[2]			
Industrial/Business Park	6,501,764 SF	8900	6200
Residential	20 Single Family	20	25
Retail	30,000 SF	80	300
Total		**9000**	**6525**
EXIT 9 PLAN[3]			
Industrial	300,000 SF	303	324
Retail	150,000 SF	336	1372
Office	880,000 SF	1483	1798
Hotel	250 ROOMS	165	184
Residential	555 UNITS	213	258
Total		**2368**	**3936**

Source: (1) based on current Town Zoning Map and Regulations

Source: (2) from Newtown Plan of Development(1993)

Source: (3) from Interstate 84, Exit 9 Hawleyville Transportation and Development Study

Note: Trips based on information contained in Trip Generation, fifth edition, by ITE

TABLE 8
WEEKDAY PEAK HOUR INTERSECTION CAPACITY ANALYSIS
(Exit 9 Plan)

	AM Peak Hour Levels of Service(1)				
				Long Term	
Intersection	Existing	Short Term	Mid Term	No Improvements	With Improvements
1. Rt 6 at Pocono Rd	B	B	C	C	*
2. Rt 6 at Bethel Rd	A	B	B	C	*
3. Rt 6 at Taunton Ln	B	B	C	D	*
4. Rt 6 at Rt 25	C	D	F(2)	F	B
5. Rt 6/ Rt 25 at Sawmill Rd	C	D	E	F	*
6. Rt 6/ Rt 25 at Sawmill Rd #2	A	B	C	C	*
7. Sawmill Rd at Sawmill Rd #2	A	A	A	A	*
8. Rt 6/ Rt 25 at Blackman Rd(West)	B	B	C	C	*
9. Rt 6/ Rt 25 at Blackman Rd(East)	B	C	C	D	*
10. Blackman Rd at Tunnel Rd	A	A	A	A	*
11. Tunnel Rd at Barnabas Rd	A	A	A	A	*
12. Tunnel Rd at Currituck Rd	A	A	A	A	*
13a. Rt 25 at Currituck Rd/ Obtuse Rd	A	A	B	B	B
13b. Currituck Rd/ Obtuse Rd at Rt 25	F	F(2)	F(2)	F	B
14. Rt 25 at Farrell Rd	A	B	B	B	*
15. Rt 25 at Barnabas Rd	C	D	F(3)	F	B
16. Rt 25 at Old Hawleyville Rd	C	C	E	F	*(4)
17. Rt 25 at I-84 Westbound Ramps	F	F(3)	F(3)	F	C
18. Rt 25 at I-84 Eastbound Ramps	F	F(3)	F(2)	F	C
19. Old Hawleyville Rd at Farrell Rd	A	A	A	A	*
20. Old Hawleyville Rd at Pocono Rd	A	A	A	A	*

* Roadway improvements are not recommended. LOS refers to"side street" movement only.

(1) Level of Service is a qualatative measurement that characterizes the operational conditions within a traffic stream and their perception by motorists and passengers. Level of Service "A" represents the best operating condition and Level of Service "F" represents the worst. Level of Service "C" or "D" are considered an acceptable quality of service to motorists and passengers.

(2) Level of Service B with improvement.

(3) Level of Service C with improvement

(4) Level of Service B with improvement

TABLE 8 (Continued)
WEEKDAY PEAK HOUR INTERSECTION CAPACITY ANALYSIS
(Exit 9 Plan)

	PM Peak Hour Levels of Service[1]				
				Long Term	
Intersection	Existing	Short Term	Mid Term	No Improvements	With Improvements
1. Rt 6 at Pocono Rd	B	C	E	F	*
2. Rt 6 at Bethel Rd	B	C	D	F	*
3. Rt 6 at Taunton Ln	C	C	F	F	*
4. Rt 6 at Rt 25	C	D	F[2]	F	C
5. Rt 6/ Rt 25 at Sawmill Rd	C	D	F	F	*
6. Rt 6/ Rt 25 at Sawmill Rd #2	B	B	C	C	*
7. Sawmill Rd at Sawmill Rd #2	A	A	A	A	*
8. Rt 6/ Rt 25 at Blackman Rd(West)	B	B	C	D	*
9. Rt 6/ Rt 25 at Blackman Rd(East)	C	D	F	F	*
10. Blackman Rd at Tunnel Rd	A	A	A	A	*
11. Tunnel Rd at Barnabas Rd	A	A	A	A	*
12. Tunnel Rd at Currituck Rd	A	A	A	A	*
13a. Rt 25 at Currituck Rd/ Obtuse Rd	B	B	B	C	C
13b. Currituck Rd/ Obtuse Rd at Rt 25	C	F[2]	F[3]	F	C
14. Rt 25 at Farrell Rd	B	B	B	B	*
15. Rt 25 at Barnabas Rd	C	F	F[2]	F	C
16. Rt 25 at Old Hawleyville Rd	B	B	D	F	*[5]
17. Rt 25 at I-84 Westbound Ramps	E	F[2]	F[2]	F	C
18. Rt 25 at I-84 Eastbound Ramps	F	F[4]	F[3]	F	C
19. Old Hawleyville Rd at Farrell Rd	A	A	A	A	*
20. Old Hawleyville Rd at Pocono Rd	A	A	A	A	*

* Roadway improvements are not recommended. LOS refers to"side street" movement only.

(1) Level of Service is a qualatative measurement that characterizes the operational conditions within a traffic stream and their perception by motorists and passengers. Level of Service "A" represents the best operating condition and Level of Service "F" represents the worst. Level of Service "C" or "D" are considered an acceptable quality of service to motorists and passengers.

(2) Level of Service B with improvement.

(3) Level of Service C with improvement

(4) Level of Service D with improvement

(5) Level of Service B with improvement

TABLE 9
I-84 MAINLINE PEAK HOUR CAPACITY ANALYSIS
(Exit 9 Plan)

TRAFFIC VOLUMES

PEAK HOUR	DIRECTION	EXISTING	SHORT TERM		MID TERM		LONG TERM	
			WITHOUT DEVELOPMENT	WITH DEVELOPMENT	WITHOUT DEVELOPMENT	WITH DEVELOPMENT	WITHOUT DEVELOPMENT	WITH DEVELOPMENT
AM	EB	1850	1993	2100	2145	2460	2490	2835
	WB	3250	3501	3520	3770	3845	4375	4440
PM	EB	3550	3824	3845	4120	4255	4780	4920
	WB	2450	2639	2745	2845	3195	3300	3680

LEVELS OF SERVICE[1]

PEAK HOUR	DIRECTION	EXISTING	SHORT TERM		MID TERM		LONG TERM	
			WITHOUT DEVELOPMENT	WITH DEVELOPMENT	WITHOUT DEVELOPMENT	WITH DEVELOPMENT	WITHOUT DEVELOPMENT	WITH DEVELOPMENT
AM	EB	B	C	C	C	C	C	C
	WB	C	D	D	E	E	F	F
PM	EB	D	E	E	F	F	F	F
	WB	C	C	C	C	D	D	E

Note: Existing traffic volumes from Hawleyville Road permanent count station
Recommended improvements will bring the Long term LOS's to acceptable levels.
W/O DEV indicates background growth only at 1.5%/yr
W/ DEV indicates background growth at 1.5%/yr plus planned development

(1) Level of Service(LOS) "A" through "D" indicate that vehicles on the freeway or mainline will maintain an acceptable "free flow" speed. However, the density of the vehicles increases, going from LOS "A" to LOS "D", in which the "freedom to maneuver" becomes more restricted. LOS "E" indicates that the freeway is at capacity with any minor interuption to the traffic flow could cause a "breakdown" in traffic flow. LOS "F" represents an overcapacity situation.

TABLE 10
I-84 EXIT 9 RAMP MERGE AND DIVERGE PEAK HOUR CAPACITY ANALYSIS
(Exit 9 Plan)

VOLUMES

Peak Hour	Direction	Ramp[1]	Existing Mainline	Existing Ramp	Short Term Mainline	Short Term Ramp	Mid Term Mainline	Mid Term Ramp	Long Term Mainline	Long Term Ramp
AM	EB	OFF	1850	300	2100	430	2460	660	2835	735
		ON	1550	330	1670	425	1800	545	2100	620
	WB	OFF	3040	430	3505	750	4235	1200	4940	1395
		ON	2610	640	2755	765	3035	810	3545	895
PM	EB	OFF	3550	620	3845	690	4255	850	4920	950
		ON	2930	390	3155	765	3405	1310	3970	1525
	WB	OFF	2475	350	2690	435	3235	760	3780	910
		ON	2125	325	2255	490	2475	720	2870	810

LEVELS OF SERVICE[2]

Peak Hour	Direction	Ramp[1]	Existing	Short Term	Mid Term	Long Term
AM	EB	OFF	B	C	C	D
		ON	B	C	C	C
	WB	OFF	D	D	F	F
		ON	D	D	E	F
PM	EB	OFF	D	E	F	F
		ON	B	E	F	F
	WB	OFF	C	C	D	E
		ON	C	C	D	D

(1) OFF = "Diverge"analysis, ON = "Merge" analysis

(2) Level of Service (LOS) "A" through "D" indicate that the analysis area will operate below capacity, however, the amount of "turbulence" will increase and the speed of vehicles will decrease going from LOS "A" to LOS "D". LOS "E" represents conditions approaching capacity. LOS "F" represents a "breakdown" condition with queues forming on the ramp and mainline.

Note: Recommended improvements will provide acceptable LOS's.

In general, without any improvements to the roadway system, traffic operating conditions will deteriorate, Level of Service "D" or worse, in the future on most roadways based on the anticipated traffic resulting from the planned development scenarios. Important Route 25 intersections that will experience a significant deterioration in traffic operations include Route 6, Interstate 84 eastbound ramps, Interstate 84 westbound ramps, Barnabas Road, and Currituck Road/ Obtuse Road. Other intersections that are designated with LOS "F" indicate that vehicles on the side street will experience some delay before entering the state highway (Route 25 or Route 6).

The "mainline" section and ramp merge/diverge areas of Interstate 84 is anticipated to operate over capacity sometime during the midterm development scenario.

Recommended Improvements

Roadway improvements are recommended at several locations within the study area in order to achieve acceptable traffic operations, Level of Service "C". Table 11 summarizes these improvements. A majority of the improvements will be located along Route 25 in the vicinity of I-84, since most of the projected traffic that will approach and depart the area will be concentrated near Exit 9 of I-84. The most significant improvement is anticipated to be needed sometime during the midterm development scenario. The I-84 bridge over Route 25 would need to be reconstructed to provide for seven lanes on I-84 (three eastbound and four westbound, including one westbound acceleration/ merge lane from Route 25). The existing I-84 bridge over Route 25 currently consists of two separate bridges, a 51 foot wide bridge westbound (three lanes) and a 39 foot wide bridge eastbound (two lanes), separated by a distance of 35 feet. The widening would include both the westbound and eastbound bridge structures to provide for an additional travel lane in each direction and would be contained to the existing median area. In addition, I-84 would need to be widened to three lanes in each direction from Exit 8 through Exit 10. The I-84 widening would be needed with or without the planned study area development. According to the "HVCEO 1993-2013 Transportation Management Plan", CDOT has recognized the need for the I-84 mainline expansion, to be determined by the availability of funds, rather than statistical data. Additional right-of-way may be required along the easterly leg of the Route

TABLE 11

RECOMMENDED ROADWAY IMPROVEMENTS

	TERM		
LOCATION	**SHORT**	**MID**	**LONG**
1. Route 6 at Route 25	OK	Construct SB & EB Double Left Turn Lanes & WB Right Turn Lane	OK
2. Currituck Rd/ Obtuse Rd at Rt 25	Install Signal, Restripe Approach to Rt 25 for Left and Right Turn lanes, formalize geometry	Provide SB Left Turn Advance Signal Phase	OK
3. Rt 25 at Barnabas Rd	OK	Install Signal, Construct WB Left Turn Lane	Construct SB Left Turn Lane & NB Right Turn Lane
4. Rt 25 at Old Hawleyville Rd	OK	Construct NB Left Turn Lane	Realign Old Hawleyville Road Opposite Barnabas Road to Form a Single Intersection[1]
5. Rt 25 at I-84 Westbound Ramps	Install Signal, Construct SB Left Turn Lane & NB Right Turn Lane, Formalize Intersection Geometrics	Construct 2nd WB Left Turn Lane	OK
6. Rt 25 at I-84 Eastbound Ramps	Install Signal, Construct SB Left Turn & NB Right Turn Lanes, Formalize Intersection Geometrics	Construct 2nd NB & SB Thru Lanes	Construct EB Double Left & Right Turn Lanes
7. Route 25	Provide Signal Interconnection Between Intersections	Construct Four to Six Lane Cross Section between Route 6 and Barnabas Road	OK
8. I-84 (between Exit 8 and Exit 10)	OK	Construct Third Lane EB & WB, Widen Route 25 Overpass	OK

[1] Provide two eastbound approach lanes on relocated Old Hawleyville Road.
Note: Location of Improvements are shown in Figure 17.

ROADWAY IMPROVEMENT LOCATIONS
NEWTOWN, CONNECTICUT

Barrkos-Iandino Design Group

FIGURE 17

TD605826

6/ Route 25 intersection, in addition to a partial extension of the existing culvert located on the same leg of the intersection.

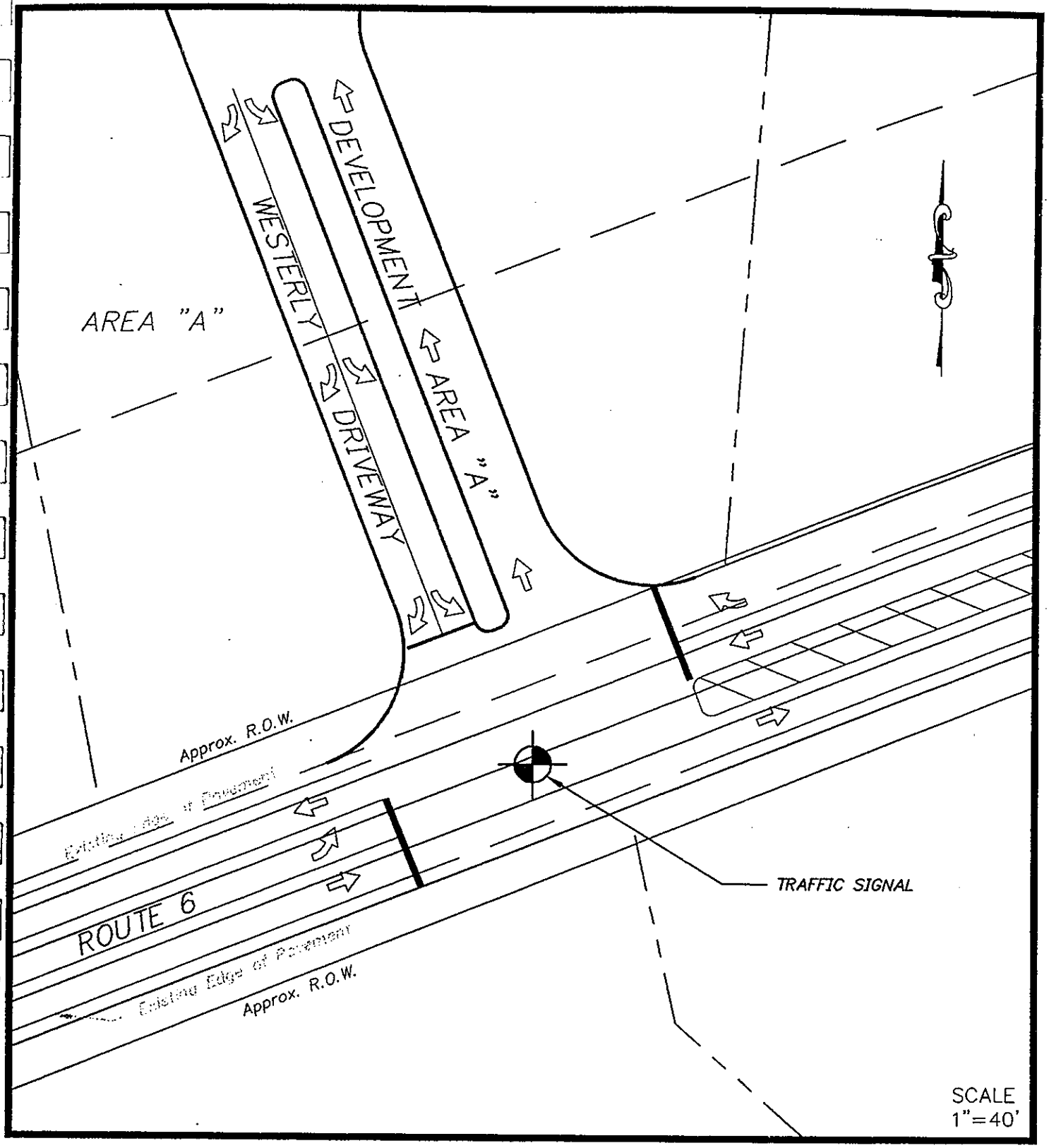
The existing location of the I-84 ramps was reviewed as to the feasibility of potentially reconfiguring the ramps to meet the anticipated future traffic demands. It was determined that by improving the existing at grade ramp intersections with Route 25, the existing ramp configuration should be adequate to facilitate future traffic volumes, with no additional right-of-way required. The westbound I-84 off ramp left turn onto Route 25 Southbound requires two left turn lanes on the off ramp to facilitate this movement (898 projected am peak hour vehicles). It would be desirable to construct a second I-84 westbound off ramp (quarter cloverleaf) in the northwest quadrant of the interchange to replace the two left turn lanes, however, property acquisition and the filling of wetlands would be required. In addition, to minimize the number of intersections along the stretch of Route 25 in the vicinity of the interchange, it is suggested that Old Hawleyville Road and Barnabas Road be realigned opposite each other to form a single intersection with Route 25. Land acquisition may be required, however.

In addition to the improvements recommended in Table 11, it is assumed that improvements located at the intersection of the future site drives with Route 6 or Route 25 will potentially require the installation of traffic signals and additional turning lanes to adequately provide access to and from these facilities. In addition, as described in a later chapter of this report, an access management program is recommended to control access on Routes 6 and 25. By reducing the number of access points along a given section of roadway, vehicles traveling through will experience less friction and disruption, thus a resulting improvement in the freedom to travel at a given constant speed and improvement in safety, less points of potential vehicle conflict.

A comparison of the recommended improvements between the "first" and "second" projections indicate that the level of improvements north of I-84 are less in the "second" projections. As stated previously, the "first" projection of future traffic volumes were presented at the October, 1996 committee meeting. These projections were also based on a market driven demand, but geared towards more commercial development located north of Interstate 84. The "second" projections of future traffic volumes contained herein, which were modified since the December 1996 Interim report, are based on a limited amount of commercial development located to the north of I-84 and the assumption of not extending public sewer service north of I-84. Thus the "second" projection eliminated the construction of a second Route 25 southbound left turn lane onto the I-84 westbound on ramp, and the provision for a second Route 25 southbound through lane from Hawleyville Road to the I-84 westbound ramps.

Intersection Schematics

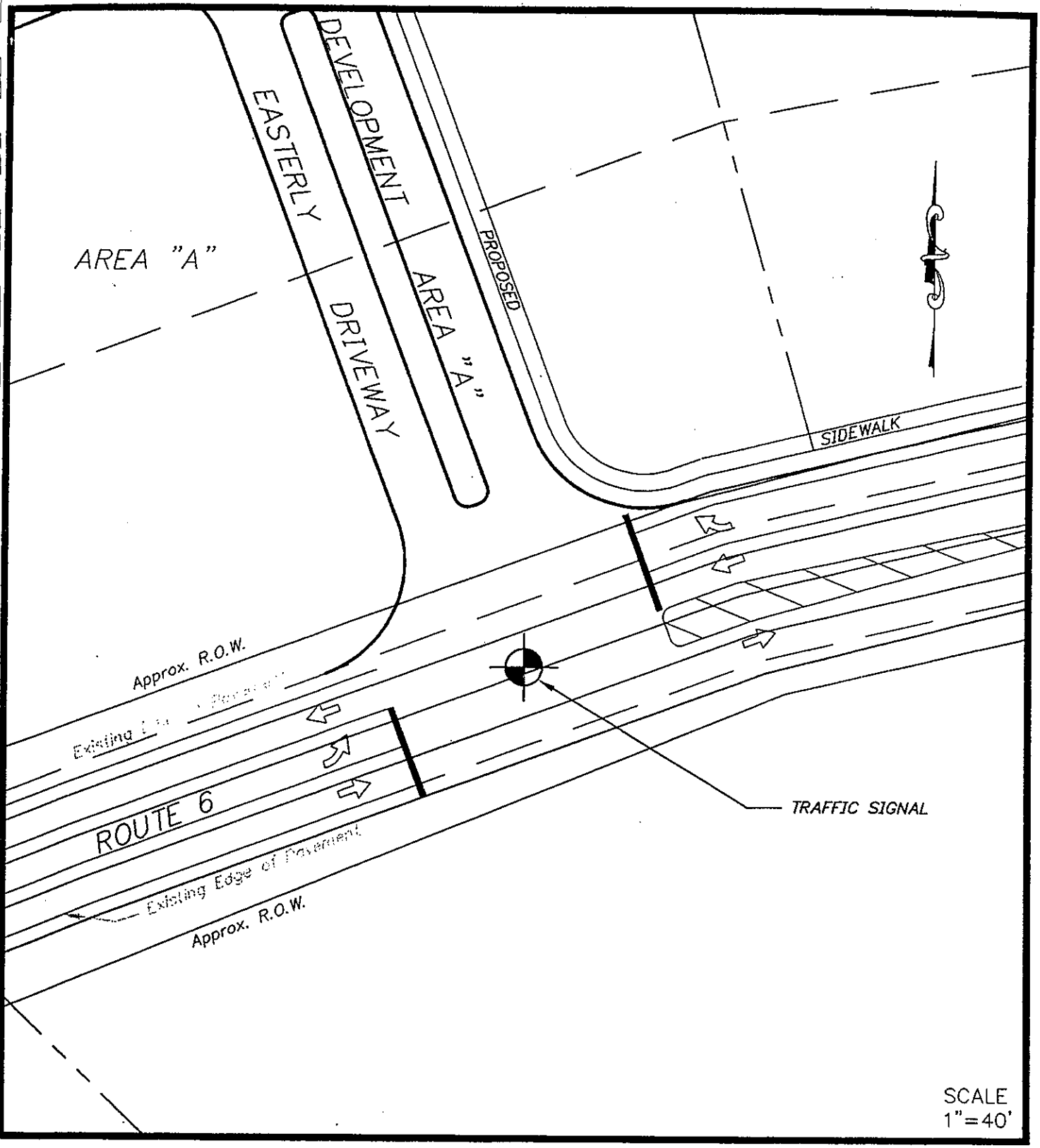
As described, various roadway improvements will be required to accommodate the anticipated study area development. Schematic diagrams indicating the long term improvement roadway configurations have been developed and are shown in Figures 18 through 27. It is anticipated that a majority of the improvements can be constructed within the existing highway right-of-way. Some of the improvements will most likely be constructed with private funds. Typically, a developer who is planning to build will need to gain permission from the State Traffic Commission (STC) and/ or the Connecticut Department of Transportation(CDOT) to locate a proposed access way onto a state highway, in this case, either Route 25 or Route 6. A traffic study is usually required to specifically determine the impact of each development. It is likely that the CDOT will require that a strip of land along the developers frontage be deeded to the CDOT to accommodate roadway widening, traffic signal equipment, etc. Any acquisition of property required for roadway improvements, especially relocated Old Hawleyville Road, is subject to review. Figures 28A through 28C show a composite of the improvements along the Route 25 Corridor within the study area.



SUGGESTED ROADWAY IMPROVEMENTS
ROUTE 6 AT WESTERLY DEVELOPMENT AREA "A" DRIVEWAY

Berakos-Landino Design Group

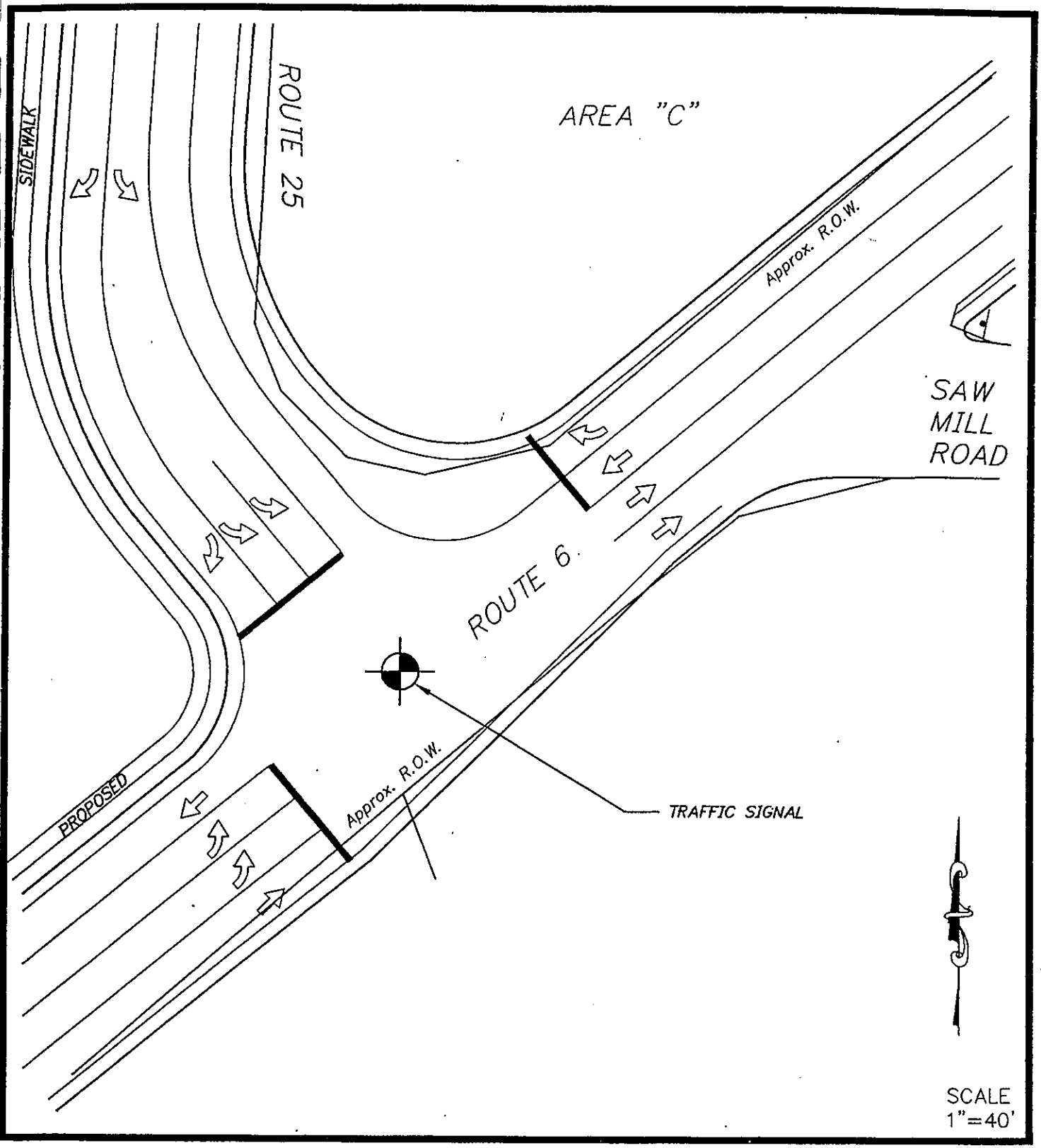
FIGURE 18



SUGGESTED ROADWAY IMPROVEMENTS
ROUTE 6 AT EASTERLY DEVELOPMENT AREA "A" DRIVEWAY

Barrakos-Landino Design Group

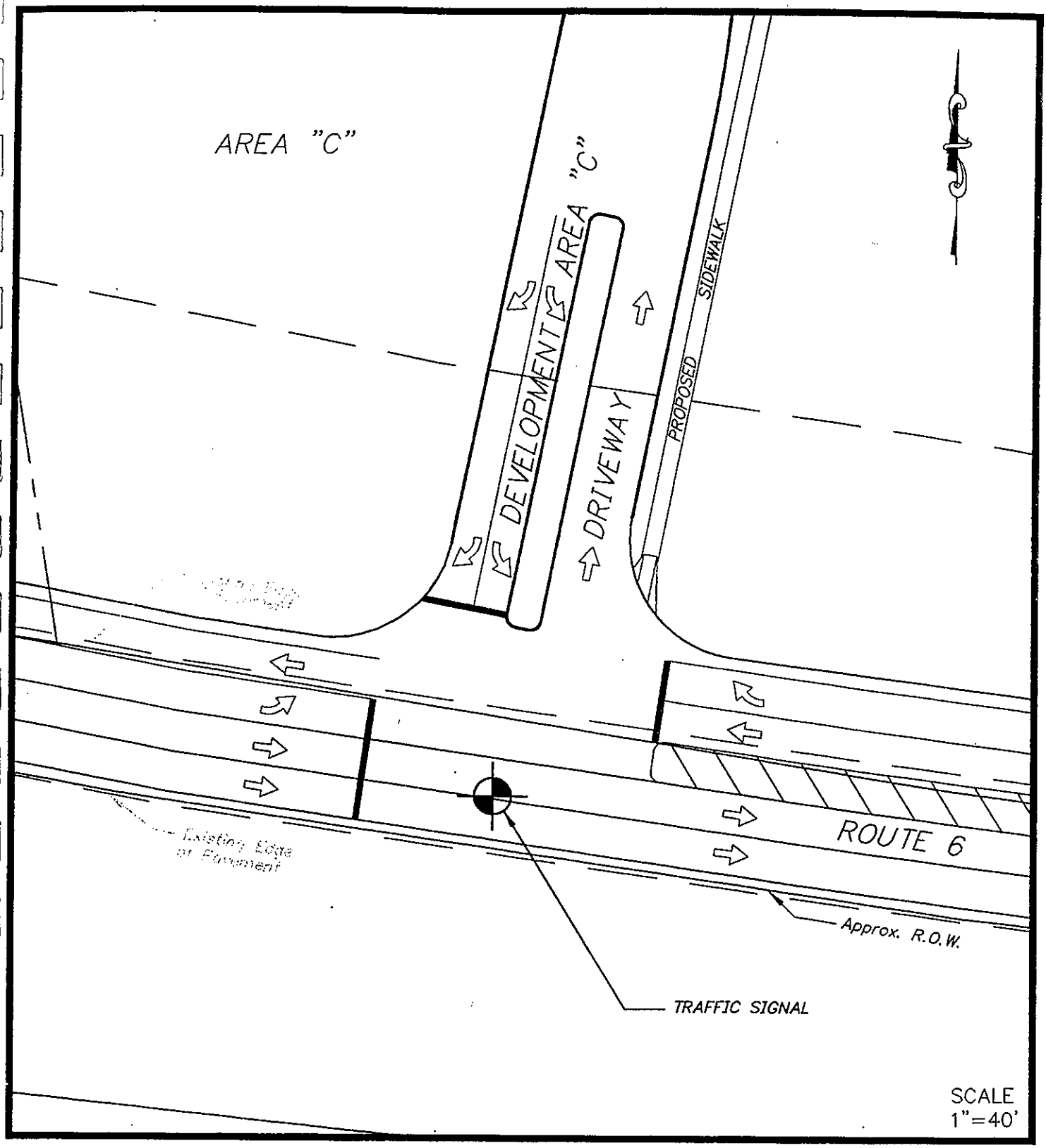
FIGURE 19



SUGGESTED ROADWAY IMPROVEMENTS
ROUTE 6 AT ROUTE 25

Barrakos-Landino Design Group

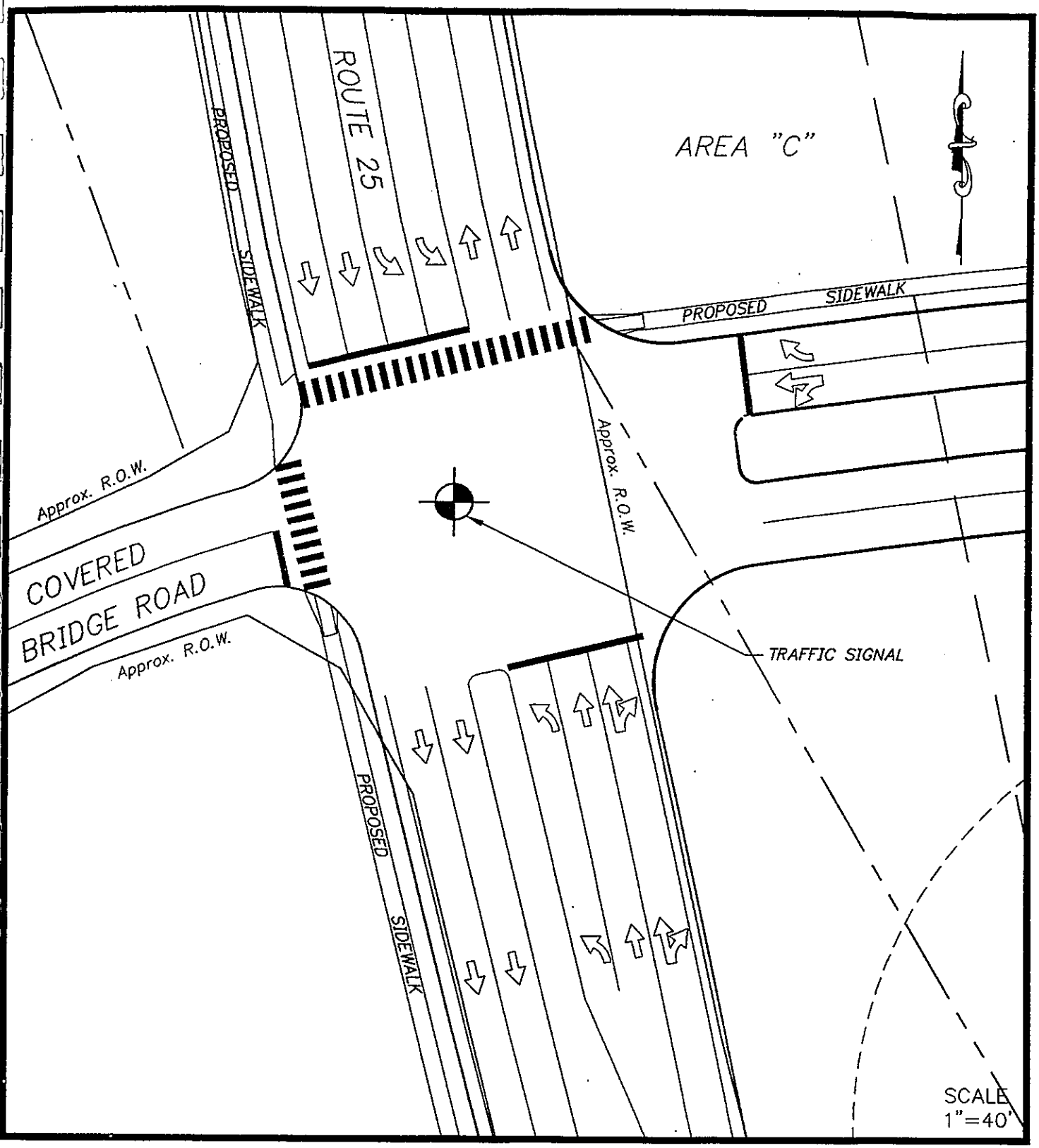
FIGURE 20



SUGGESTED ROADWAY IMPROVEMENTS
ROUTE 6 AT DEVELOPMENT AREA "C" DRIVEWAY

Barakos-Landino Design Group

FIGURE 21



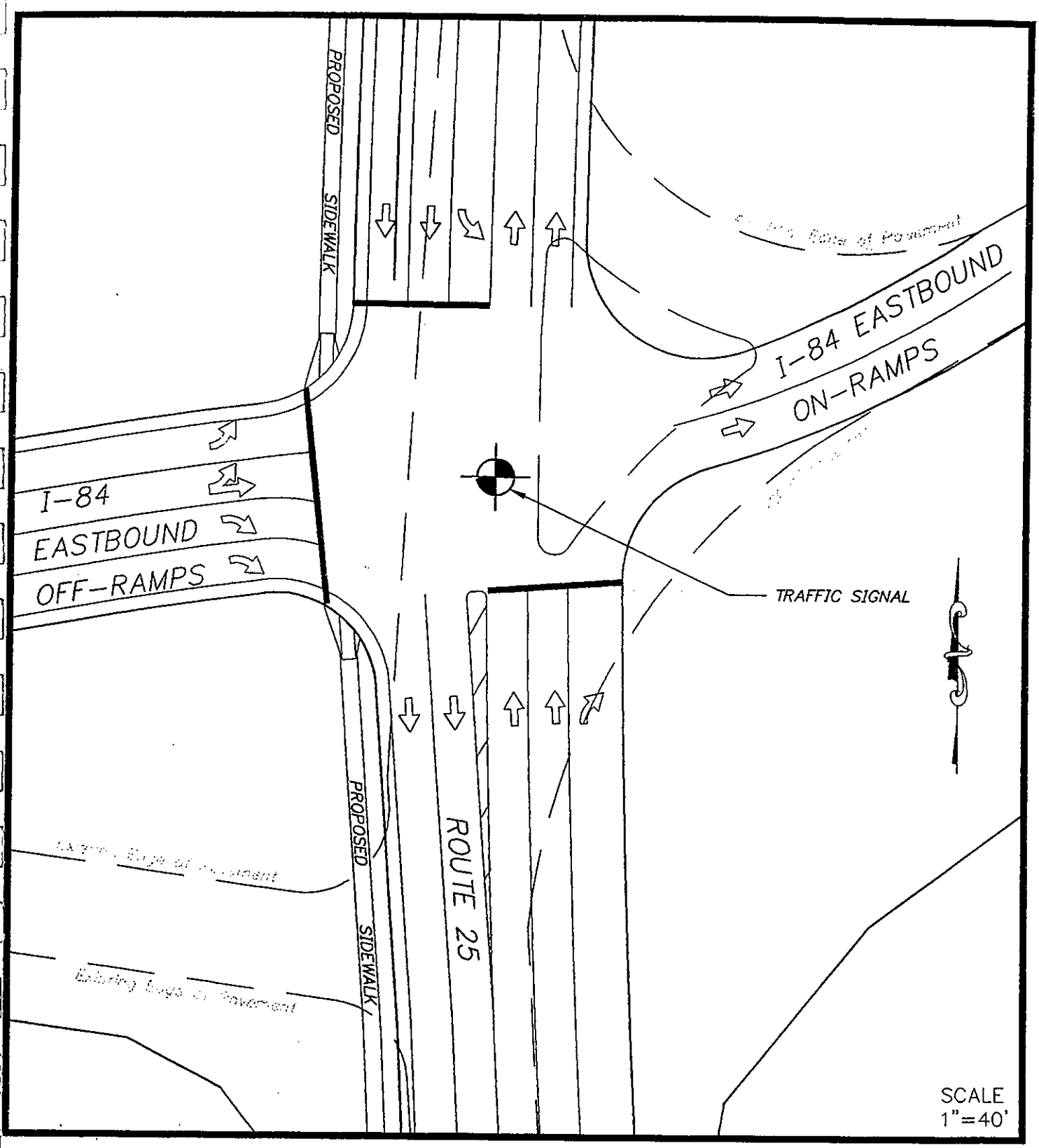
SUGGESTED ROADWAY IMPROVEMENTS

ROUTE 25 COVERED BRIDGE ROAD/

DEVELOPMENT AREA "C" DRIVEWAY

Barrakos-Iandino Design Group

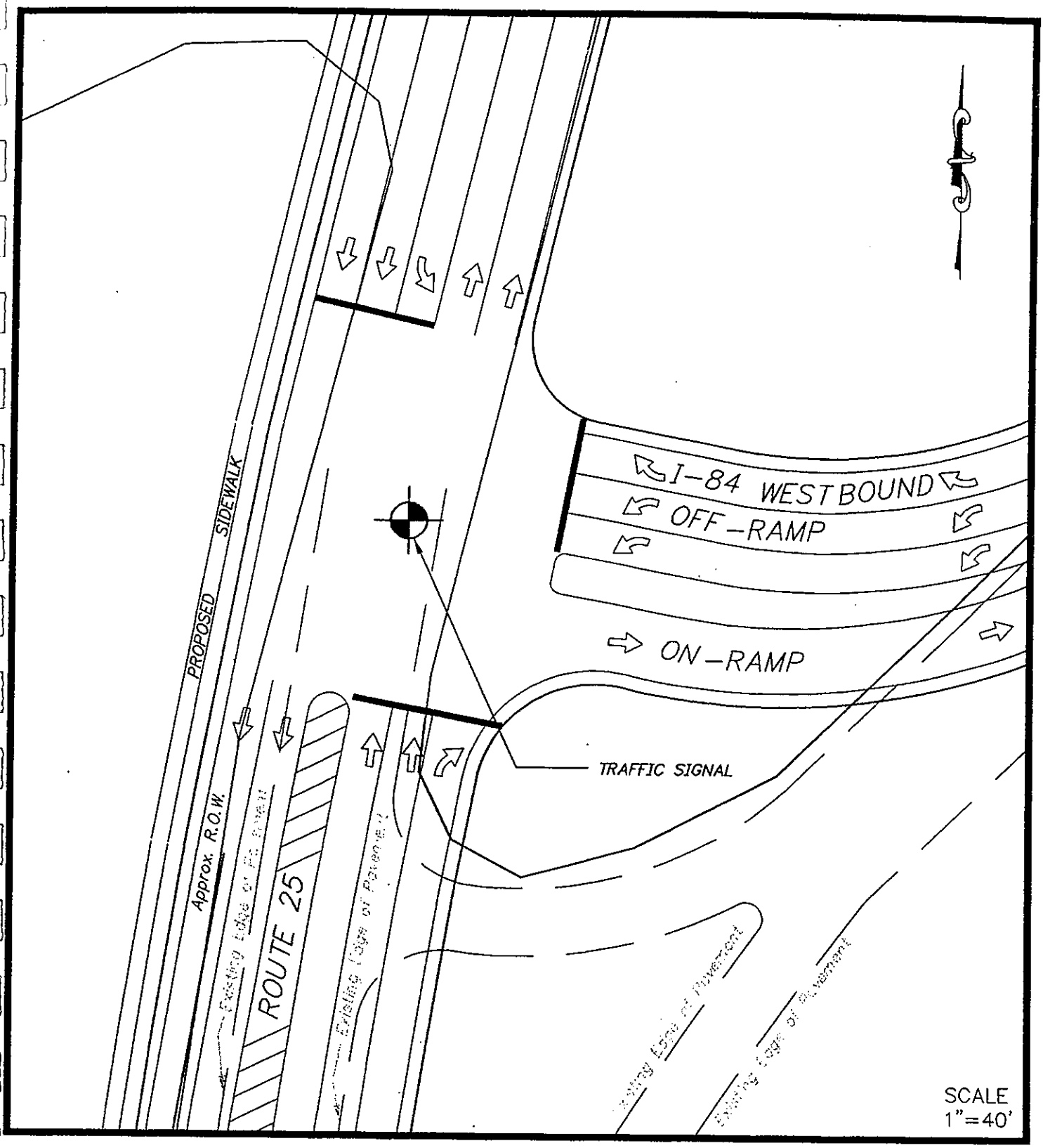
FIGURE 22



SUGGESTED ROADWAY IMPROVEMENTS
ROUTE 25 AT I-84 EASTBOUND RAMPS

Barakos-Landino Design Group

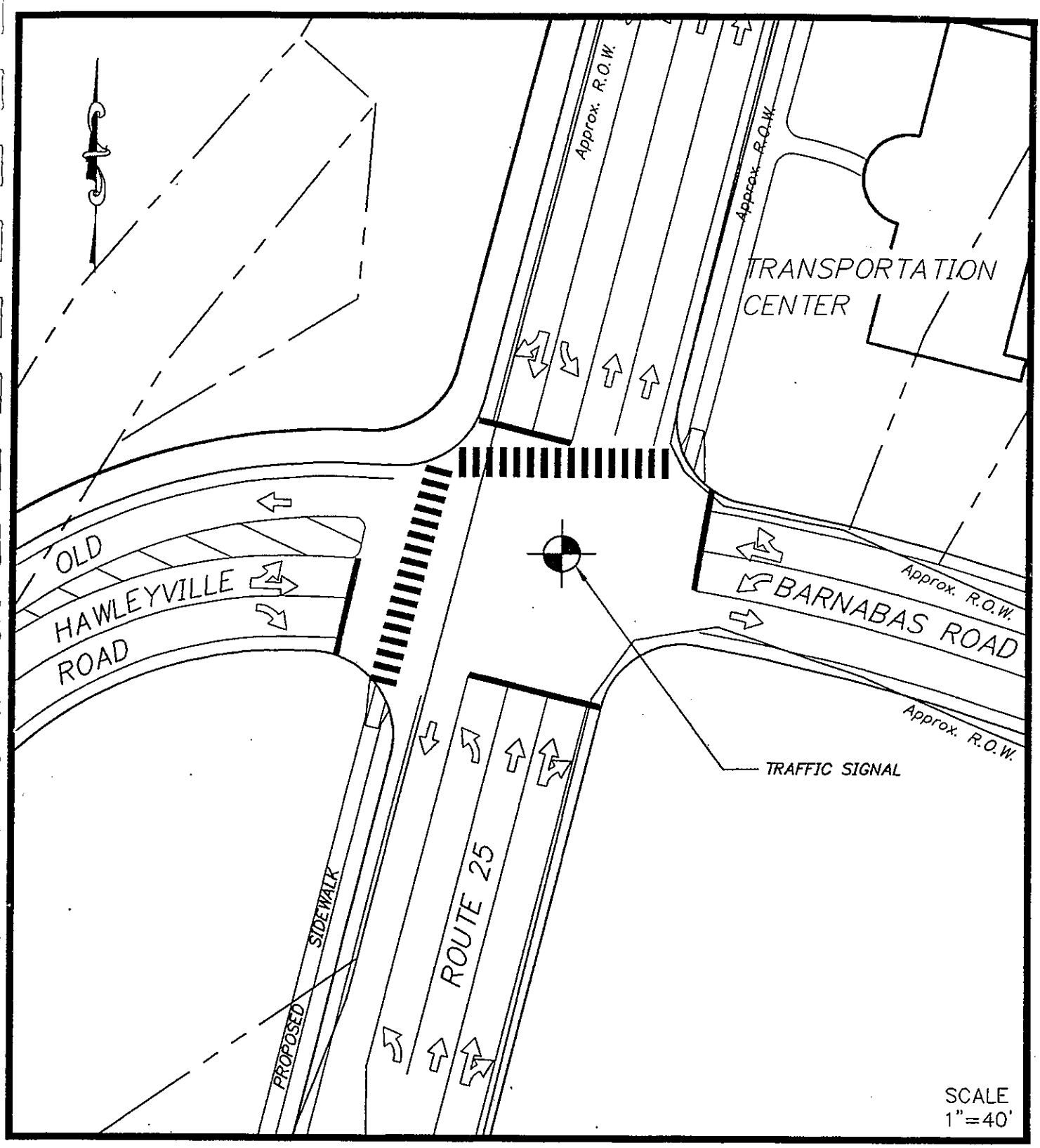
FIGURE 23



SUGGESTED ROADWAY IMPROVEMENTS
ROUTE 25 AT I-84 WESTBOUND RAMPS

Barakos-Landino Design Group

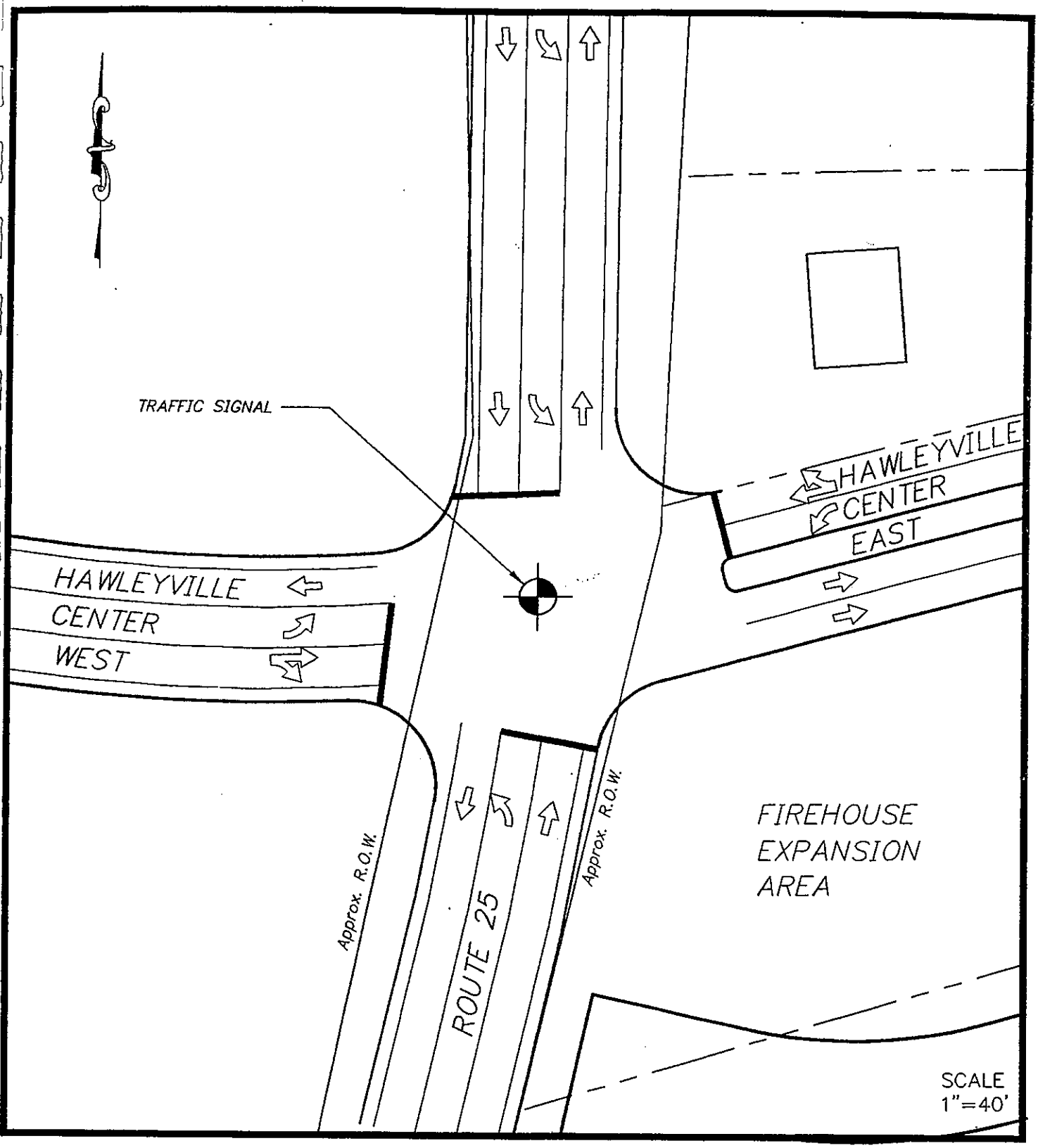
FIGURE 24



SUGGESTED ROADWAY IMPROVEMENTS
ROUTE 25 AT BARNABAS ROAD AND RELOCATED OLD HAWLEYVILLE ROAD

Barakos-Landino Design Group

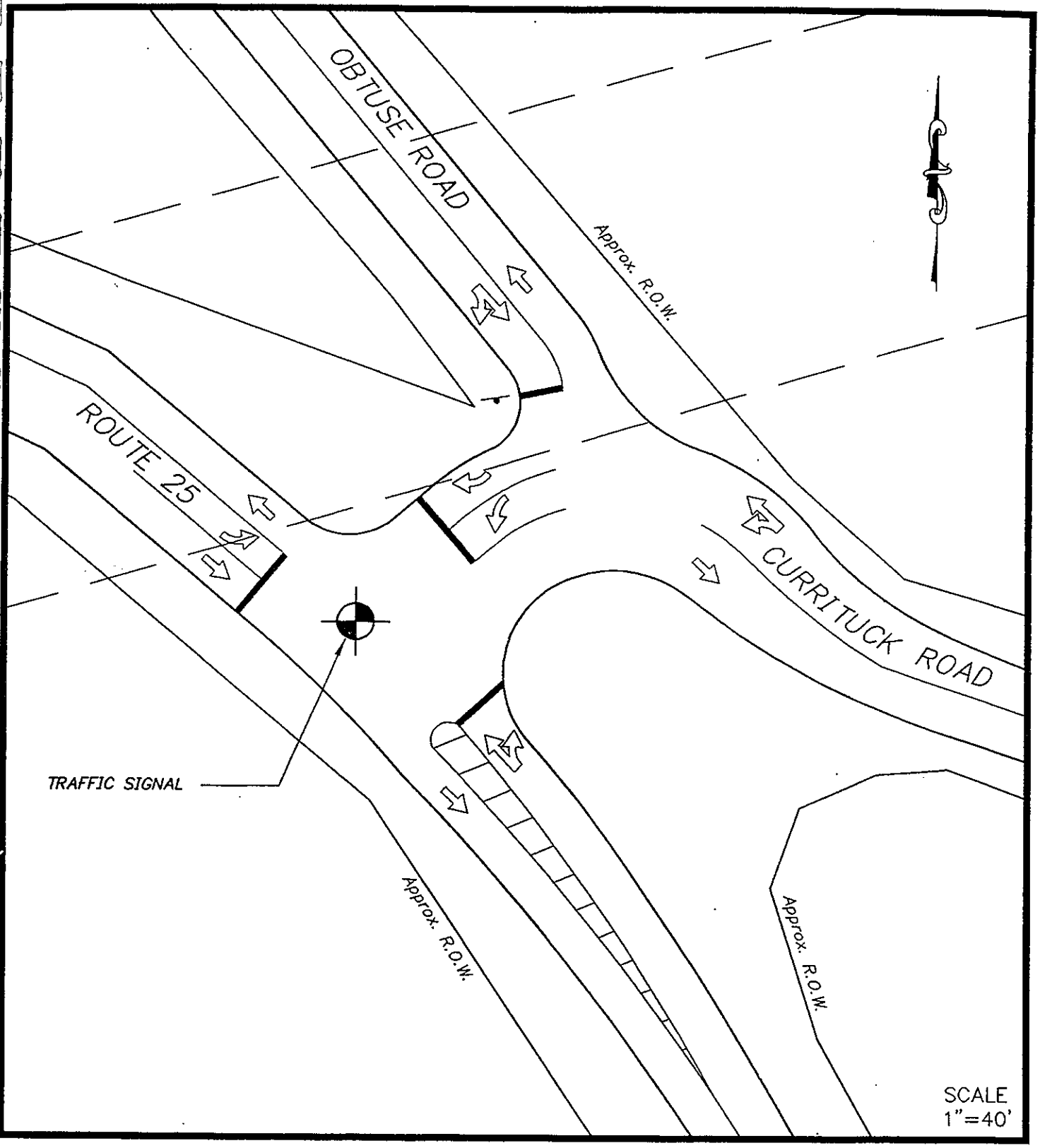
FIGURE 25



SUGGESTED ROADWAY IMPROVEMENTS
ROUTE 25 AT HAWLEYVILLE CENTER

Barakos-Iandino Design Group

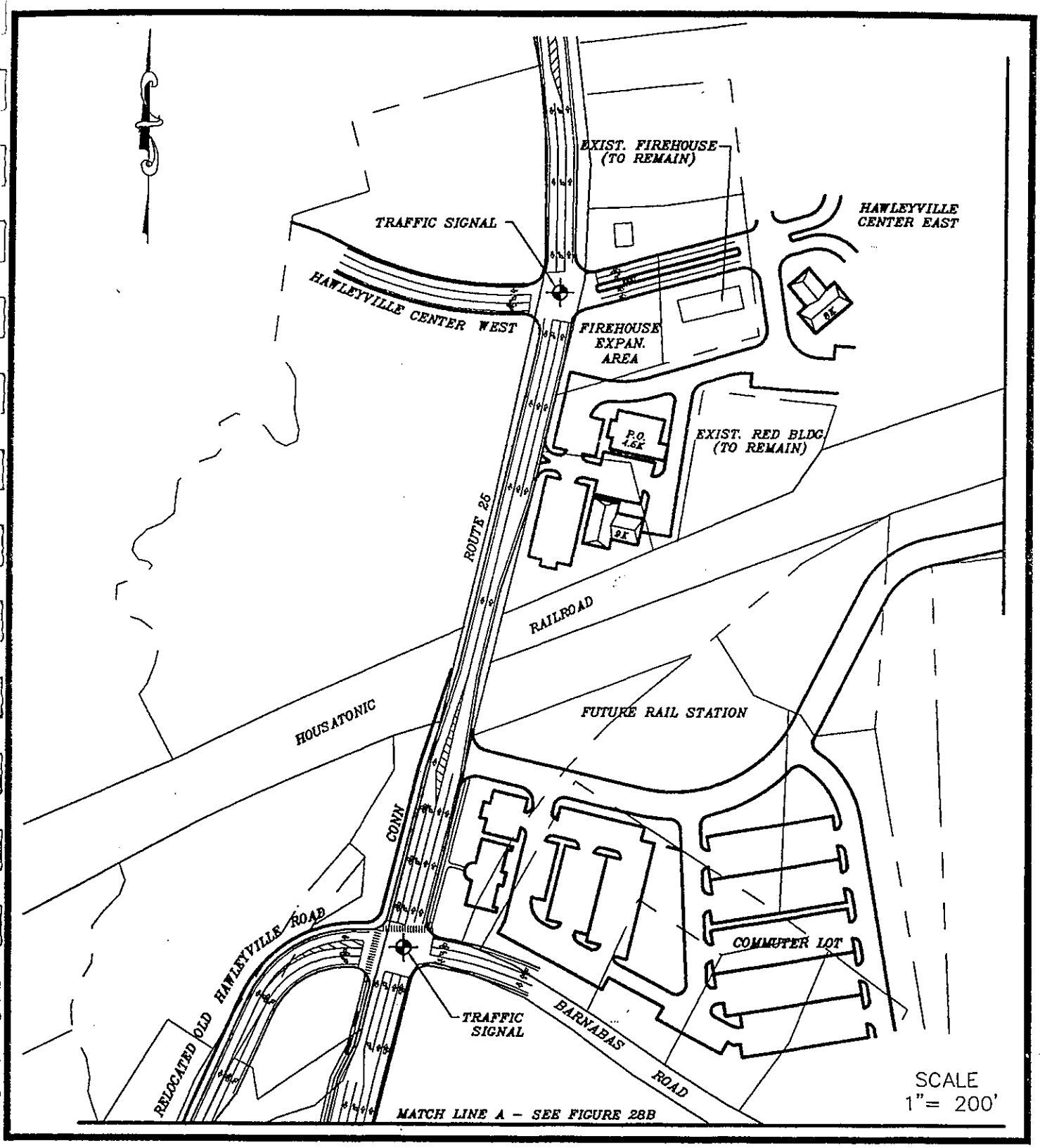
FIGURE 26



SUGGESTED ROADWAY IMPROVEMENTS
ROUTE 25 AT CURRITUCK ROAD AND OBTUSE ROAD

Benkoe-Landino Design Group

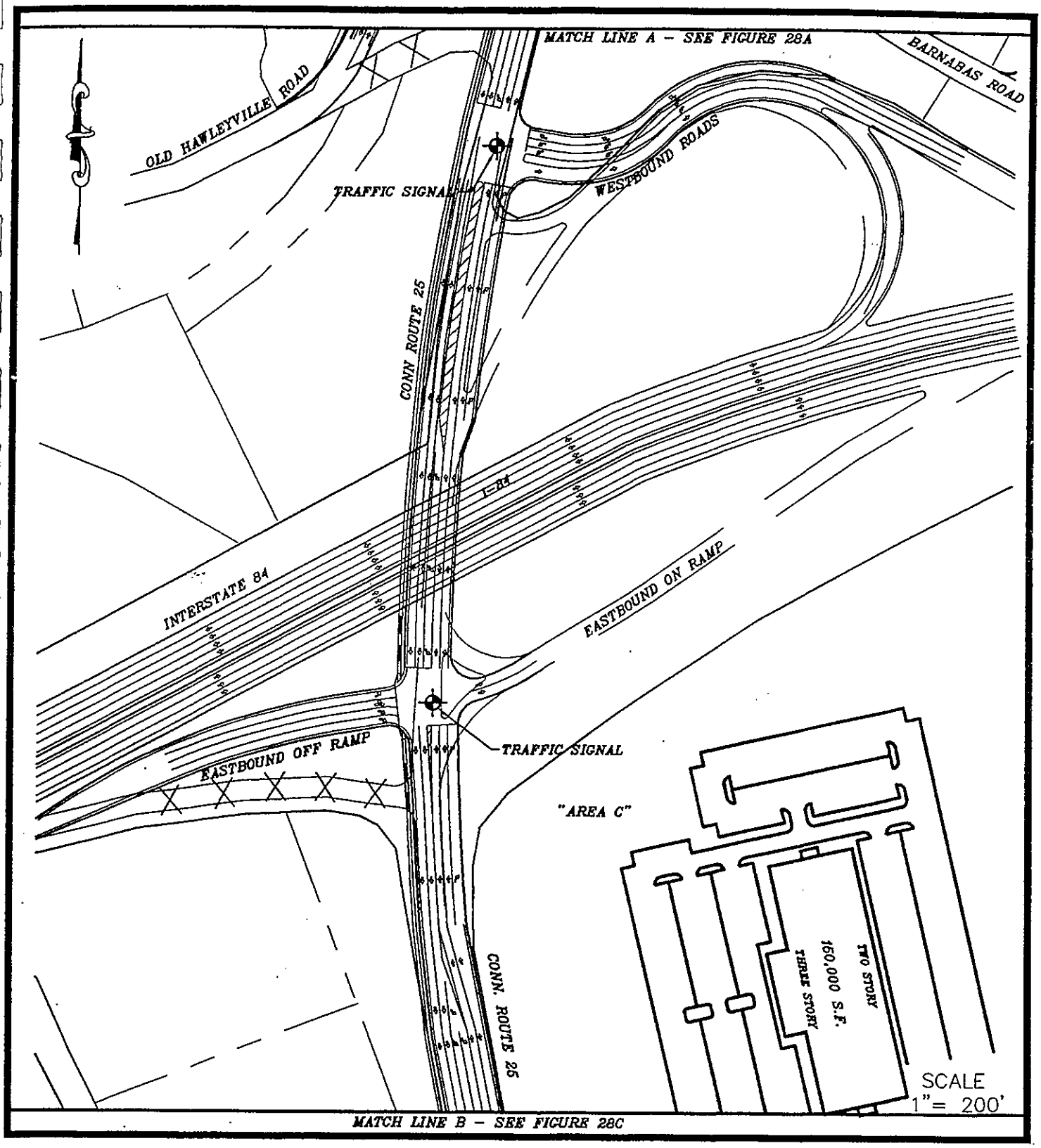
FIGURE 27



ROUTE 25 CORRIDOR
NEWTOWN, CONNECTICUT

Berlakos-Landino Design Group

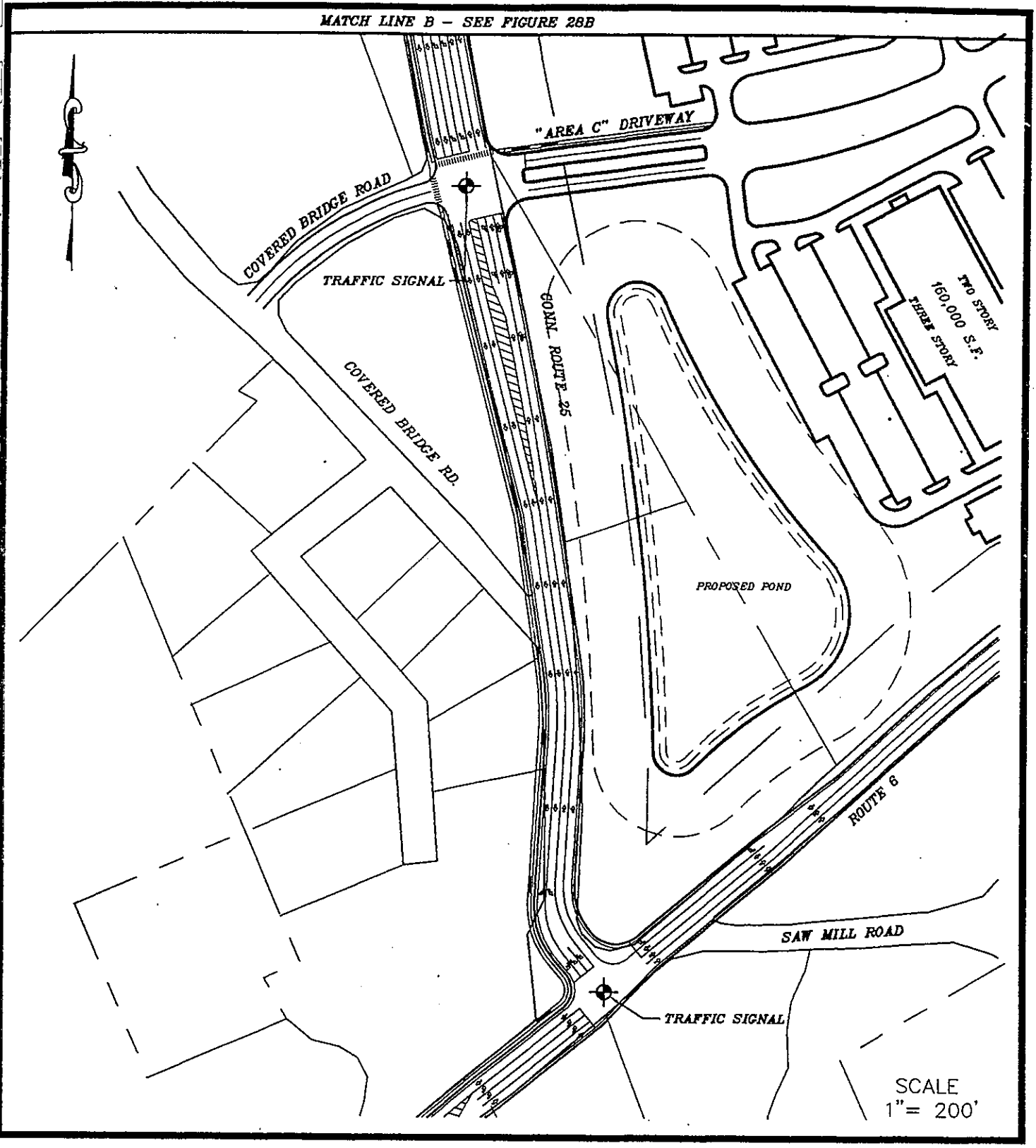
FIGURE 28A



ROUTE 25 CORRIDOR
NEWTOWN, CONNECTICUT

Barrakos-Landino Design Group

FIGURE 28B



ROUTE 25 CORRIDOR
NEWTOWN, CONNECTICUT

Barakos-Landino Design Group

FIGURE 28C

Transportation Costs

Estimated roadway transportation costs have been developed for each of the improvements shown in Figures 18 through 27. Table 12 summarizes these costs.

These costs were developed utilizing standard CDOT Conceptual Estimates for Planning Purposes. Five basic roadway costs were determined which include earthwork, drainage, pavement, structures, and other significant features such as traffic signals, guiderail, sidewalks, curbing, etc. Other items included in the costs are design, utility relocation, and contingencies. It was assumed that total reconstruction of the pavement would be required due to the extent of the widening, thus yielding a conservative cost estimate. Improvement costs along Route 25 between Route 6 and Barnabas Road include the widening of Route 25 at and between each intersection.

TABLE 12
ESTIMATED ROADWAY IMPROVEMENT COSTS

LOCATION	ESTIMATED COSTS
Route 6 at Area A	$160,000
Route 6 at Route 25	$530,000
Route 6 at Area C	$215,000
Route 6 at Area C/ Covered Bridge Road	$850,000
Rt 25 at I-84 Eastbound Ramps	$725,000
Rt 25 at I-84 Westbound Ramps	$575,000
Route 25 at Relocated Old Hawleyville Road and Barnabas Road	$750,000
Route 25 at Hawleyville Center	$250,000
Route 25 at Currituck Road and Obtuse Road	$200,000

Note: Costs include improvements between intersections.

Transportation Conclusions

Based on the results of the above analyses, it was determined that the recommended roadway improvements needed to facilitate the projected trip demand are physically feasible. In general, ample roadway right-of-way exists along Route 25. I-84 was originally designed to be expanded from four to six travel lanes by utilizing the existing median area and reconstruction of the bridges over Route 25 between Exits 8 and 10. This improvement to I-84 would accommodate the most extensive improvements required by the various development scenarios. It should be noted that this improvement has previously been recognized by the CDOT. The potential use of transit use will not be significant to offset the recommended improvements. For this reason combined with the somewhat modest level of development as part of the proposed scenarios, improvements to the roadway network will be sufficient to provide for future transportation needs.

PART IX

ILLUSTRATIVE COMPUTER GRAPHIC TRANSPORTATION IMPROVEMENT IMAGES

In order to assist neighborhood residents and town officials in assessing changes in the road network needed to accommodate the planned development areas, computer enhanced imaging for future transportation infrastructure was developed. These images will give decision makers and residents the opportunity to better understand the character and scale of the future transportation improvements within the study area.

Five transportation related images were produced, four along Route 25 and one on Route 6.

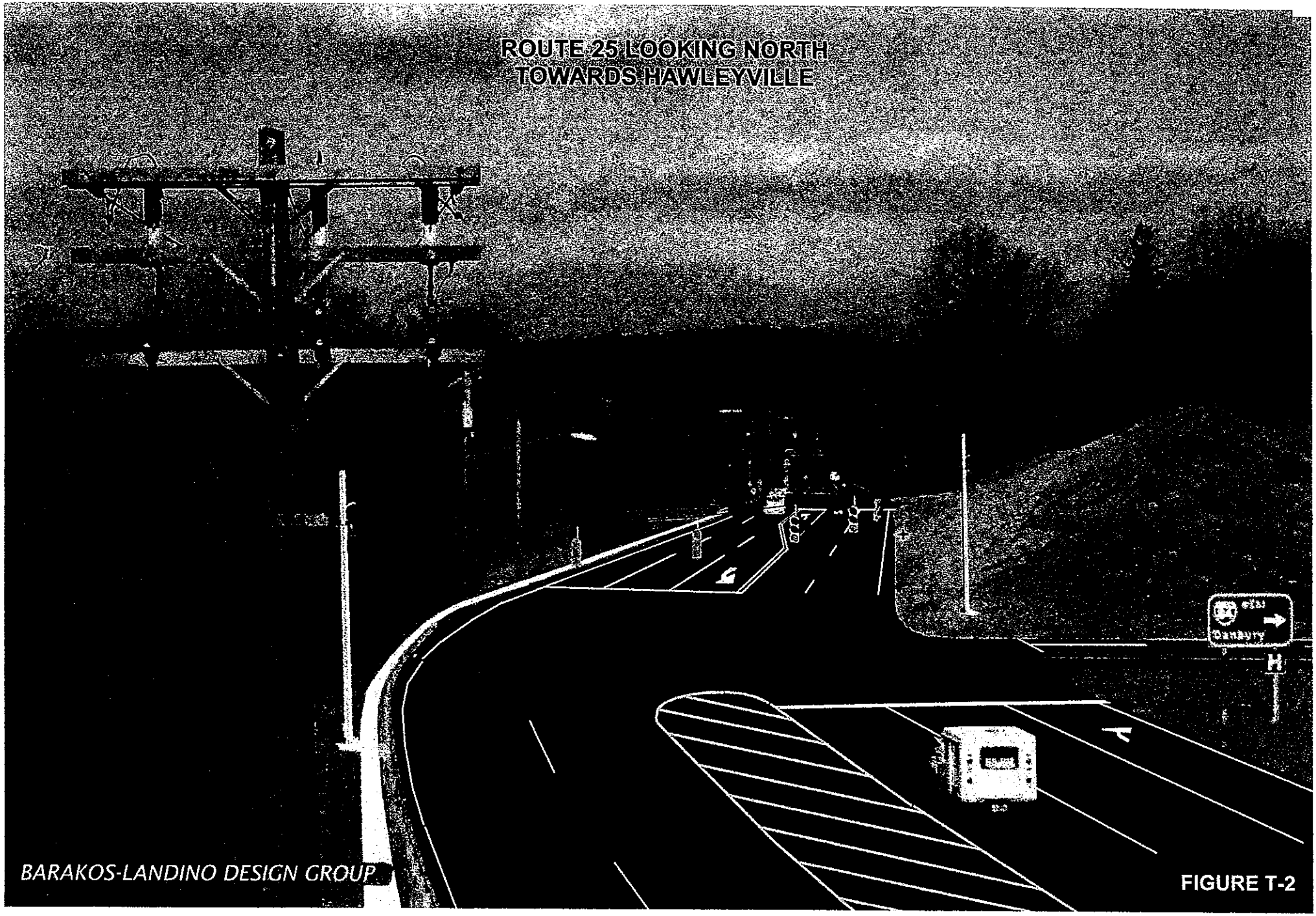
Route 25 (Figure T-1)

This is a Route 25 northbound view taken from a point located approximately 500 feet south of the I-84 overpass. In the foreground, the eastbound I-84 exit and entrance ramps are shown on the left and right, respectively. Route 25 is five lanes wide underneath the I-84 overpass. A southbound left turn lane and northbound right turn lane for vehicles desiring to head east on I-84 are provided. Traffic signals are proposed. The I-84 exit ramp is four lanes wide.

Route 25 (Figure T-2)

This view is in a northbound direction looking down from on top of the I-84 overpass. The intersection of the westbound ramps is shown in the foreground with the intersection of the relocated Old Hawleyville Road and Barnabas Road shown in the background. Route 25 is five lanes wide with designated turning lanes at the intersections. Traffic signals are shown. The reconfigured I-84 westbound ramps are shown on the right.


ROUTE 25 LOOKING NORTH
TO INTERSTATE 84 OVERPASS
BARAKOS-LANDINO DESIGN GROUP
FIGURE T-1


ROUTE 25 LOOKING NORTH
TOWARDS HAWLEYVILLE
BARAKOS-LANDINO DESIGN GROUP
FIGURE T-2

Route 25 at Route 6 (Figure T-3)

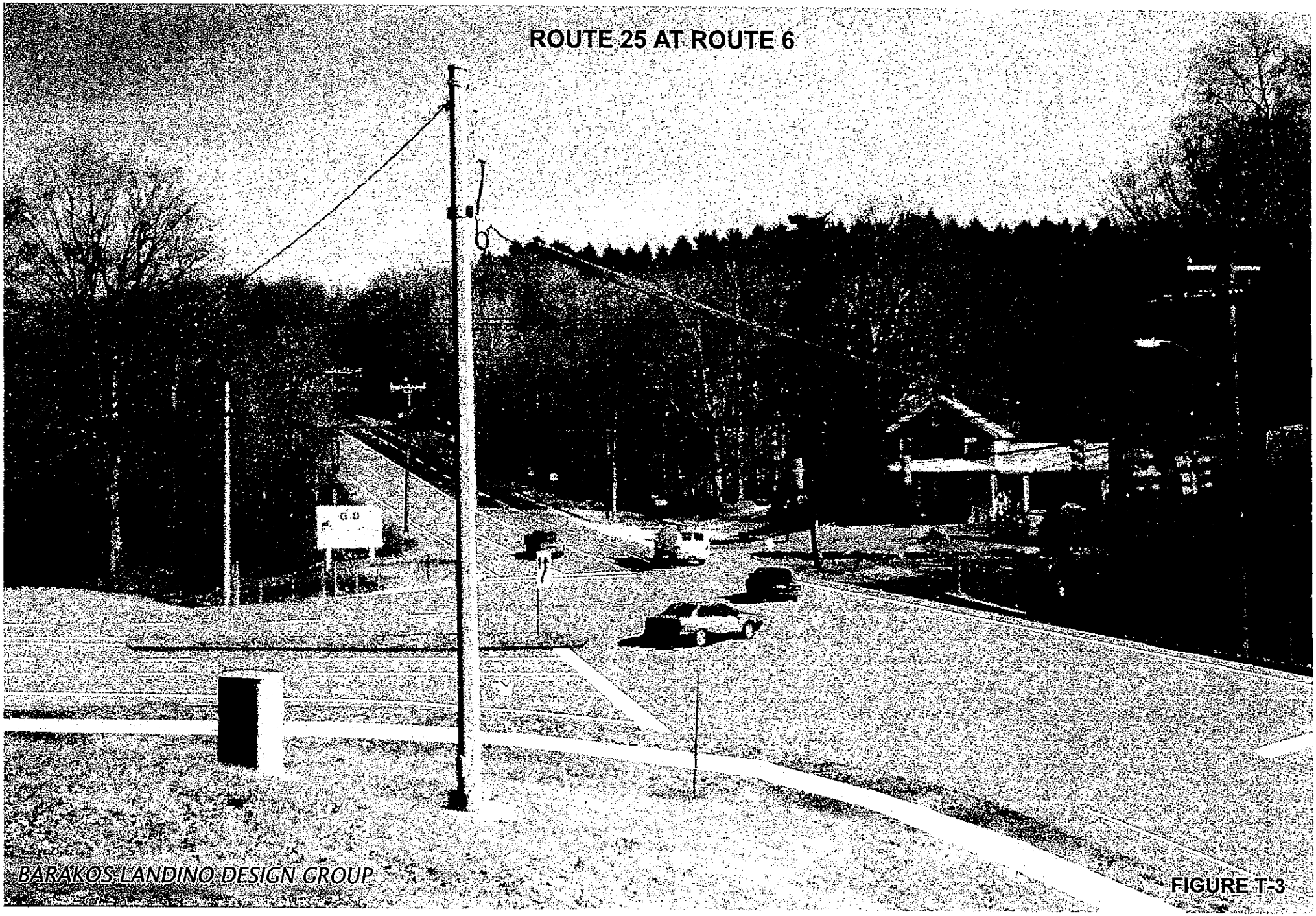
This easterly view is taken from the top of an embankment located in the northwest corner of the intersection. As shown on the left side of the image, Route 25 is five lanes wide with the approach to Route 6 consisting of two left turn lanes and a single right turn lane. A four lane Route 6 is shown in the background with a separate right turn lane coming down the hill to turn onto Route 25 north. To the far right is shown a portion of the stop bar for the Route 6 eastbound approach.

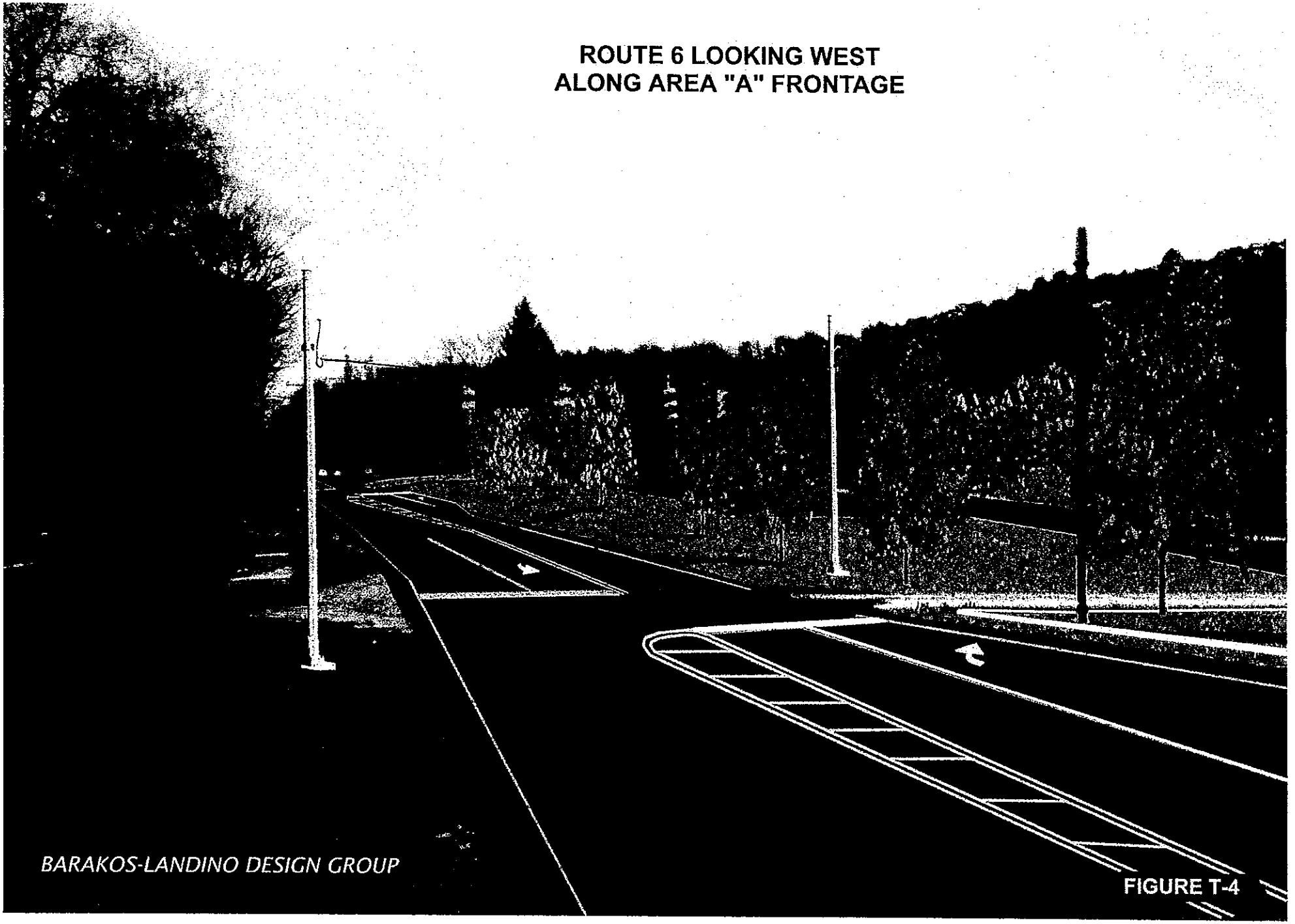
Route 6 at Area A Easterly Driveway (Figure T-4)

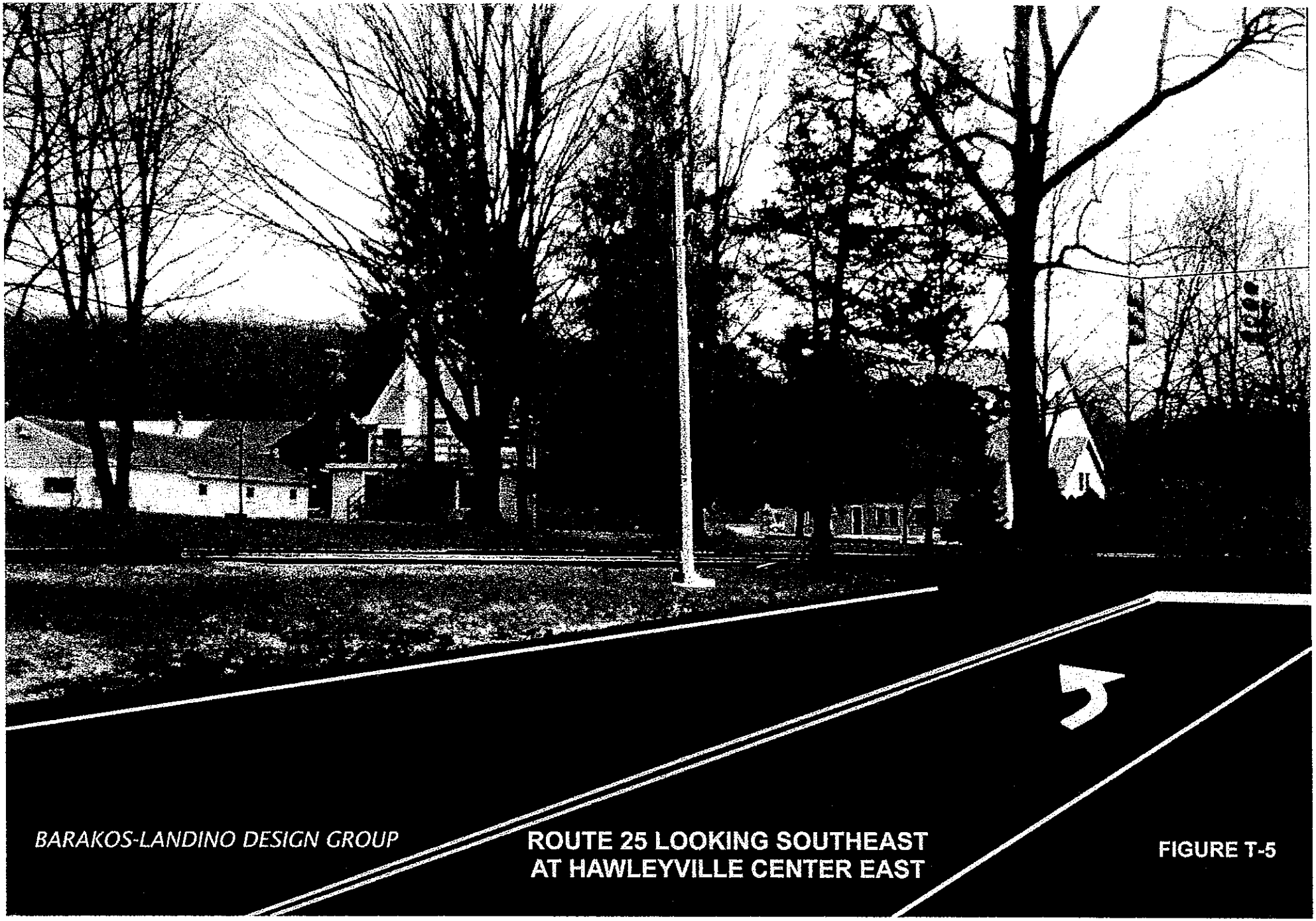
This view is taken from a point along the south side of Route 6 located approximately 250 feet east of Area A's easterly driveway looking in a westerly direction. A median divided driveway is shown on the right. Separate turning lanes for vehicles desiring to enter Area A are indicated. In the far background continuing along Route 6 towards Bethel westerly Area A driveway is shown. Through the trees in the center of the image is a portion of the retail area within Area A and its parking area.

Route 25 at Hawleyville Center East Drive (Figure T-5)

This view is taken along the easterly side of Route 25 facing a south-southeasterly direction. The median divided Hawleyville Center East driveway is shown center left. A southbound left turn lane is shown in the foreground. Traffic signals are proposed. This view shows the Hawleyville Fire Company building with the "red barn" to the rear as well as the proposed new building in located in the southwest corner and adjacent to the railroad tracks.


ROUTE 25 AT ROUTE 6
BARAKOS-LANDINO DESIGN GROUP
FIGURE T-3


ROUTE 6 LOOKING WEST
ALONG AREA "A" FRONTAGE
BARAKOS-LANDINO DESIGN GROUP
FIGURE T-4



BARAKOS-LANDINO DESIGN GROUP

ROUTE 25 LOOKING SOUTHEAST AT HAWLEYVILLE CENTER EAST

FIGURE T-5

PART X

COST BENEFIT ANALYSIS

Introduction

The following presents a cost/benefit analysis of the Illustrative Master Plan for the Hawleyville Area. It must be remembered that the nature of this assignment has been at the planning level. Therefore, all estimates of income as well as expenses are based upon projections using reasonable assumptions. Where appropriate these assumptions have been stated herein. As has been discussed throughout the process of preparation of the plan, the exact timing of various developments is dependent upon a variety of market forces including competitive activity in the market area as well as regional and national economic conditions. In addition, investments in infrastructure and services by state and local governments as well as the private sector will be subject to project and site specific decisions. For the most part, investments in infrastructure as well as increased costs of providing services will follow the private investment which generates increased revenue. Therefore, the approach used is one in which both expenditures and revenues are spread over a 20 year period on an incremental basis to provide a picture of relative benefits. Overall, we believe that reasonable assumptions have been used and that overall conclusions as to the cost/benefit impacts of the plan are valid. It should be noted that all costs and revenues are based upon 1997 dollars. It is assumed that inflation will result in an adjustment of these amounts over the 20 year period. However, the cost/benefit ratios will remain the same.

Property Tax Revenues

The projected Illustrative Master Plan for Hawleyville indicates a long term development expansion which will add about 2.2 million square feet of new construction in various uses. The current costs to construct the various type facilities has been estimated by an application of the Marshal & Swift cost guide unit cost for each building category. A 5% addition was made to the total for site improvements such as parking, fencing, landscaping and lighting and the assessment was calculated at 70% to determine the tax base. The 1997-1998 mill rate of 25.9 was then applied to the increased tax base and the incremental revenues upon full build out are estimated

as approximately $2,680,400 million annually. The following chart presents a summary of this calculation.

USE	SPACE SQ. FT.	COST	VALUE	70%	TAXES @ 25.9 MILLS
General Office	80,000	$63.25	$5,060,000	$3,542,000	$965,423
Corporate Office	600,000	$88.75	$53,250,000	$37,275,000	$96,542
Medical Office	200,000	$79.75	$15,950,000	$11,165,000	$289,174
Light Industry	150,000	$30.95	$4,642,500	$3,249,750	$84,169
Distribution	150,000	$30.80	$4,620,000	$3,234,000	$83,761
Retail	130,000	$48.75	$6,337,500	$4,436,250	$114,899
Hotel	150000	$66.30	$9,945,000	$6,961,500	$180,303
Restaurant	20,000	$73.40	$1,468,000	$1,027,600	$26,615
Assisted Living	240,000	$69.20	$16,608,000	$11,625,600	$301,103
Townhouses	335,000	$48.60	$16,281,000	$11,396,700	$295,175
Single Family	130,000	$51.10	$6,643,000	$4,650,100	$120,435
	2,185,000		$140,805,000	$98,563,500	$2,552,795
Site Improvements		5%	$7,040,250	$4,928,175	$127,680
Total					**$2,680,434**

The tax calculation does not include the revenue from the taxes on the land. This value is already a component of the existing grand list. However, the development of the properties will also lead to increased land values and probably reclassification of lands from "excess" or "rear" categories into "prime site categories", which will lead to further increased assessment and tax

proceeds. Another benefit component not included in the preceding calculation is the assessment and revenues from personal property. On the current grand list, personal property approaches $50,000,000 not including motor vehicles. Assuming all such property is associated with non-residential uses that is about 32% of the commercial/industrial assessment on real estate. When that ratio is applied to the proposed development exclusive of townhouses and single family homes, the estimated personal property is about $26,405,300 and associated taxes would be about $684,000.

Sales Tax Revenues

In addition to the property taxes generated by the projected development, there will be sales tax revenues. While some of this sales tax revenue will be generated by sales already occurring in the State, the location of Hawleyville adjacent to Interstate 84 and the corporate development proposed will result in sales new to the State. While an exact estimate of sales tax revenue is difficult, if one computes sales for the retail segment (130,000 square feet) it would generate $26,000,000 in sales at $200 per square foot. Since not all products sold would be subject to sales tax, a blended rate of 4% has been applied to sales. This would generate $1,040,000 in sales tax revenue. There would be $204,000 generated from restaurant sales of 20,000 square feet at $175 per square foot. In addition, there would be sales tax revenues from the hotel as well as from products produced in the industrial space and services provided in the office and service space. Since the extent of sales tax revenues from office and service space relate specifically to the nature of business conducted, these revenues have not been included in the calculation. However, it can be assumed that the sales tax revenue from the proposed development would be higher than the projections used in this analysis.

There would also be sales tax revenues generated as a spin-off relating to income derived by people employed in the study area. It is estimated that there would be $142,003,000 in income in 1997 dollars paid to the estimated 4,185 employees at full build out. National studies indicate that 40% of income is expended on retail sales. Therefore, retail sales from wages in the study area would be $62,587,000. Utilizing the 4% blended sales tax rate an estimated sales tax

income of $2,503,000 annually would result.

State Income Tax

A major revenue stream generated by development in the study area would be state income tax paid by persons employed in the area. Using the $142,003,000 total income described above, state income tax revenue of $4,260,000 would be generated on an annual basis. This is based upon an effective income tax rate of 3%.

Of course, construction and associated revenues will not occur overnight and the actual revenues will be spread out over an extended development period. In an analysis below a twenty year period is used and the assumption is made that development occurs in a straight line over the period such that each year's increment of development is the same. The actual occurrence is likely to be more "lumpy", but the trend analysis begins to portray the anticipated schedule of revenues. Revenues grow from all sources from about $443,400 on an annual basis in 1999 to the full estimate of about $8,868,332 in 2018. **The total cumulative revenues is about $93,117,500 over the period.**

This total revenue is comprised of the following components:

Newtown Real Estate Property Taxes	$28,144,557
Newtown Personal Property Taxes	$7,180,933
Connecticut Sales taxes	$13,062,000
Connecticut Income Taxes	$44,730,000

Capital Project Costs

There are two primary public capital costs related to support the Illustrative Master Plan. These costs are the provision of sanitary sewers and necessary road improvements. These costs are described below. It is assumed that water service will be extended if needed at private cost.

Sewers

The cost of providing sanitary sewer service to the study area in accordance with the Development Plan proposals is comprised of four components. These components are: (1) previous cost to purchase treatment capacity at the Danbury Treatment Plan; (2) previous cost of providing the size in the line in Bethel to carry flows from Newtown; (3) the future cost of extending the line from the Bethel/Newtown line to Barnabas Road; and (4) the purchase of additional treatment capacity over previously purchase 150,000 gallons per day at the Danbury Treatment Plant. The first two costs are known based upon signed agreements. The second two components must be projected. The following lists each cost component:

(1) Purchase of 150,000 gallons per day treatment and cost of larger line in Bethel*	$2,000,000
(2) Cost of purchasing 250,000 additional gallons per day**	$1,665,000
(3) Cost of extending line to Barnabas Road	$2,000,000
Total	**$5,665,000**

In addition to the capital cost of these items, there will also be debt service if such costs are financed by the Town. This debt service is significant as reflected in the $1,331,708 interest cost projected for the $2,000,000 already bonded by the Town. However, since the method of financing and the sharing of costs for all improvements is not known at this time, we have not included debt service in projected costs as a portion of these costs are likely to be offset by connection charges and user fees. It should be also noted that no user fees have been included in the income side of the cost/benefit analysis. Such fees would off-set current and future capital and interest costs to some extent.

*Per signed agreements and Town Estimates

**Projection based on cost of 150,000 gallons in current agreement

Road Improvements

The second category of infrastructure costs needed is road improvements. The extent of private contribution to such costs is determined on a project by project basis as part of the State Traffic Commission approval process. Due to the planning nature of this assignment, the exact allocation of public/private costs in support of road improvements is very difficult at this time. Therefore, for planning purposes we have allocated costs based upon "front door" improvements related to specific proposed developments to the private sector and more general benefit intersection and/or roadway costs to the public sector. As projects actually emerge and are subject to Town and State Traffic Commission review, this split might be modified. However, the material presented herein is valuable to give an overall picture of the extent of improvements needed and costs attributable to such improvements.

Road Improvements - Public

Intersection of Route 25 and Route 6	$ 531,700
Intersection of Route 25 and I-84 EB Ramps	$ 728,500
Intersection of Route 25 and I-84 WB Ramps	$ 576,600
Intersection of Route 25 and Old Hawleyville Road (relocated)/Barnabas Road	$ 743,700
Subtotal	$2,579,900
Multi-Modal Transportation Area	$ 250,000
Total	**$2,829,900**

Road Improvements - Private

Intersection of Route 25 and Area C Off-site Improvements Driveway	$ 855,100
Area A Off-site Improvements (Route 6)	$ 160,300
Area C Off-site Improvements (Route 6)	$ 214,100
Area B Hawleyville Off-site Improvements (Route 25)	$ 256,400
Total	**$1,485,900**

Cost of General Government Services

The other component of costs is the incremental cost of providing Town services to support the new development in the study area. The following presents an analysis of such costs.

The primary impacts of non-residential development on a town are directed toward public safety and public works services. Rutgers University, Center for Urban Policy Research has engaged in extensive research in this area and has developed the definitive work on municipal fiscal impact analysis. Case studies prepared by the Center for Urban Policy Research from the mid-70's to the present indicate that "commercial facilities have the largest impact on public safety and public works services. Other services are only minimally affected. These case studies suggest the following disaggregation of total projected expenditures associated with a new development[1]."

Municipal Service Category	Distribution of Total Costs Percentage
General Government	6%
Public Safety	75%
Public Works	15%
Health and Welfare	2%
Recreation and Culture	2%
Total	**100%**

Proportional Valuation Fiscal Impact Method

In estimating the public costs attributable to non-residential growth, we have used the Proportional Valuation method of fiscal impact analysis.

[1] Burchell, Robert W. Listokin, David, Dolphin, William R.; The New Practitioner's Guide To Fiscal Impact Analysis; Rutgers University, Center for Urban Policy Research, 1985, p.31.

Proportional Valuation Method:

This method, is an average costing approach and the most widely used of all fiscal impact methodologies for non-residential uses.

"A basic assumption of the Proportional Valuation Method is that municipal costs increase with the intensity of land use, and change in real property value is a reasonable substitute for change in intensity of use. Further, as non-residential real property value departs significantly from the average local real property value, the direct proportional relationship must be refined to avoid either overstating (where incremental or average non-residential real property value significantly exceeds average local property values) or understating costs (where incremental or average non-residential real property value is significantly less than average local property value)[2]."

Proportional Valuation Methodology for Newtown, CT

1) *Town of Newtown Total 1997 - 1998 Proposed Municipal Budget:*

Municipal Budget	Appropriations	Percent of Total Budget
Administration	$5,098,094	13%
Public Safety	$3,921,326	7.4%
Public Works	$6,515,478	12.3%
Debt Service	$7,281,126	13.8%
Total General Fund Expenditures	$22,816,024	43.2%
Education Expenditures	$29,954,880	56.8%
Total Municipal Expenditures	**$52,770,904**	**100%**

Source: Town of Newtown Proposed General Fund Budget as of 3/97.

[2]Ibid. p.19

2) *Total General Fund Expenditures Attributable to Non-Residential Uses:*

In order to determine the General Fund Expenditures which are attributable to non-residential uses as opposed to residential uses, we have performed the following calculations:

Total 1996 - 1997 General Fund Expenditures (Proposed)	$23,925,685
Proportion of Commercial/Industrial Assessed Value ($153,599,600) to Total Local Real Property Assessed Value ($1,328,509,050)	0.1156
Refinement Coefficient[3] to adjust for overstatements in the share of costs where average commercial/industrial assessed value ($212,155) exceeds average local property assessed value ($52,887).	1.25
See Attachment A for Detailed Chart	
Total Existing General Fund Expenditures Attributable to Non-Residential Use (22,816,024 x .1156 x 1.25)	$3,296,915

3) *Share of Total General Fund Expenditures Which Will Be Generated By Planned Project Commercial/Industrial Development:*

Total Existing General Government Expenditures Attributable to Non-residential Use	$3,296,915
Estimated Assessed Value of Commercial/Industrial Development ($100,875,000) to Total Existing Local Assessed Non-residential Real Property Value ($153,599,600)	.66

A Refinement Coefficient[4] adjusts for overstatements in the share of costs where the average assessed value of the proposed development projects significantly exceeds the average local commercial/industrial assessed property value. The average planned project is estimated at about $1,550,000 which is 7.3 times the existing average commercial account.

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[3] The Refinement Coefficient used here was derived from Exhibit 6-3, page 124, in The Fiscal Impact Handbook, Robert W. Burchell and David Listokin (New Brunswick, NJ: The Center for Urban Policy Research, 1978).

[4] Ibid.

Based on the chart in Attachment A this indicates a Refinement Coefficient of .40.

Additional Municipal Costs for Commercial/Industrial Allocated to Development Plan ($3,296,915 x .66 x 0.40) **$870,385**

4) *Share of Total General Fund Expenditures and Education Costs Which Would be Generated By Single Family Development*

The proposed plan includes about 46 new single family homes. This includes 26 lots in Sub-Area C and 20 lots within Sub-Area D on Old Hawleyville Road. This 46 lot total could also include some homes in Farrell Road area based upon final sub-division approvals. This is only about 12% of the single family development potential in the study area under existing zoning.

Principal costs associated with this growth are general government and education costs. The several townhouses in the project are all identified as elderly housing and no education expenses are associated with them and in fact they have been included in the previous calculation of commercial/industrial costs.

The single family costs are estimated based on an application of per capita general government costs and per student education costs. The estimates on an annual basis are as follows:

General Government

Total General Government Cost Per Budget	$22,816,024
Minus Costs Associated With Commercial	$3,296,915
Estimated Residential General Government Cost	$19,519,109
Newtown Population Estimate - 1995	20,971
Per Capita General Government Cost ($19,519,109/20,971)	$930

Proposed Development of 46 Homes Estimated To Have 3.2 Persons Per Household Or A Total Of About 147 People AT $930 Per Capita Associated General Government Costs Would Be **$136,710**

Education Costs

The proposed budget for education in 1997 - 1998 is $29,954,880. Connecticut Public Expenditures Council reports indicate enrollment was 4,030 in 1995 - 1996. School enrollment increased from 3,509 in 1992 - 1993 at an average growth of 174 students per year. Using that figure to estimate 1997 - 1998 enrollment the student total would be about 4,378. That leads to an average per student cost of ($29,954,880/4,378) $6,842

School enrollment has been running at about 17% to 20% of total population. An estimate of 20% is applied to the population in the planned project. Which leads to an estimate of 29 students.

Based on that estimate and a per student cost of $6,842, the education cost associated with the single family component of the project would be (29 x $6,842) **$198,418**

5) *Total Additional Municipal Costs(Annually)*

Allocated To Development Plan **$1,205,513**

Total Costs Associated with the Development Plan

Overall public costs associated with the development plan include capital expenses of about $8,494,900 for sewers and roads plus cumulative municipal operating costs over the 20 year period of about $12,626,250 on a phased in basis for a total of $21,121,150. **$21,121,150**

Summary

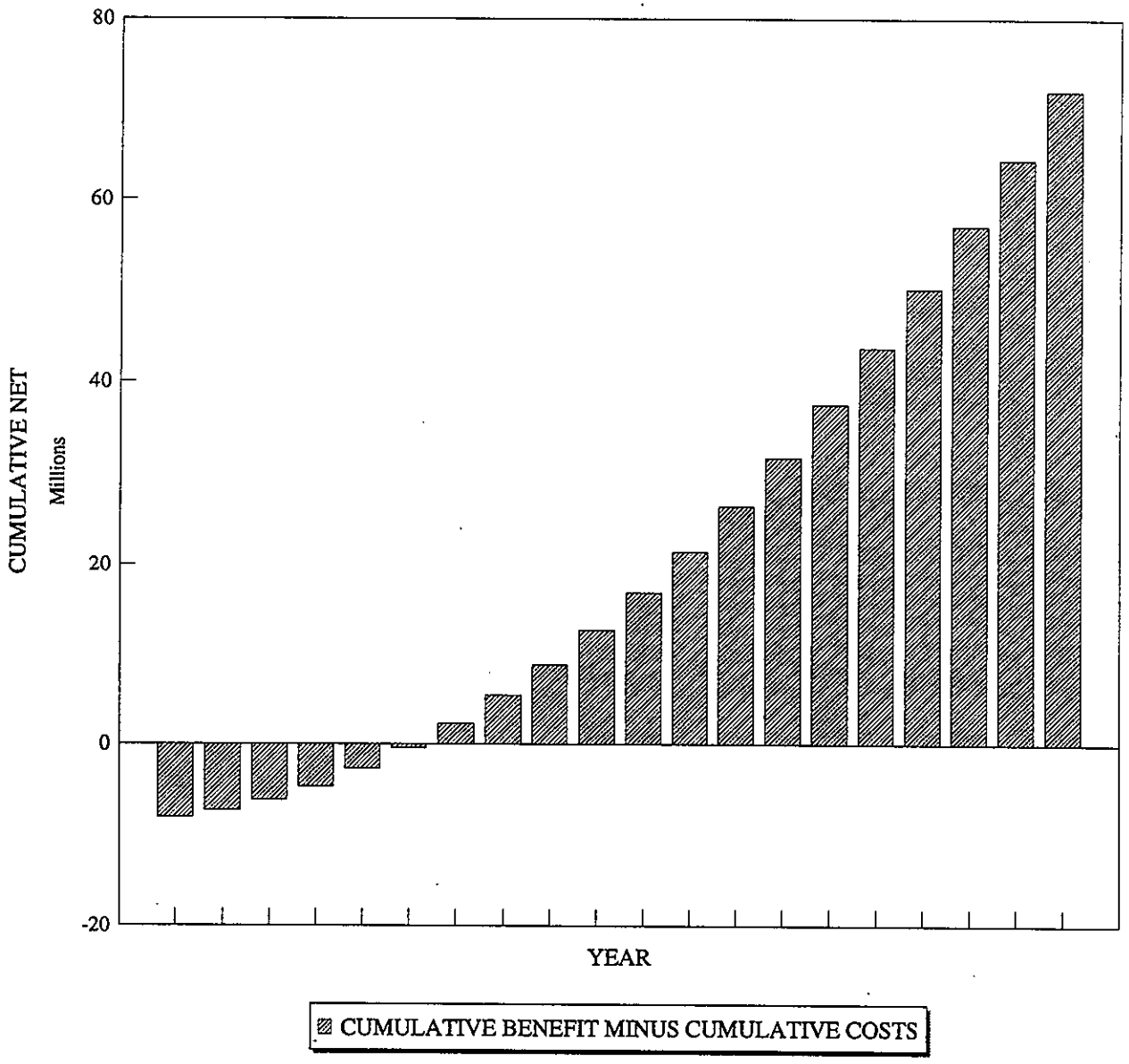
In summary, with 20 year cumulative revenues of $93,117,500 and Costs of $21,121,150, it is clear that the Illustrative Master Plan will have a very positive fiscal impact. This fiscal impact is beneficial to the Town of Newtown since there will be a limited number of single family

residences developed (46) compared to the estimated 400 single family homes that could be built under existing zoning thereby minimizing the number of school age children. From a state perspective, the quality of development anticipated and the proximity to Interstate 84 will generate net increases in both sales tax revenues and income tax revenues. The corporate office and medical segments are anticipated to be importers of jobs and expenditures.

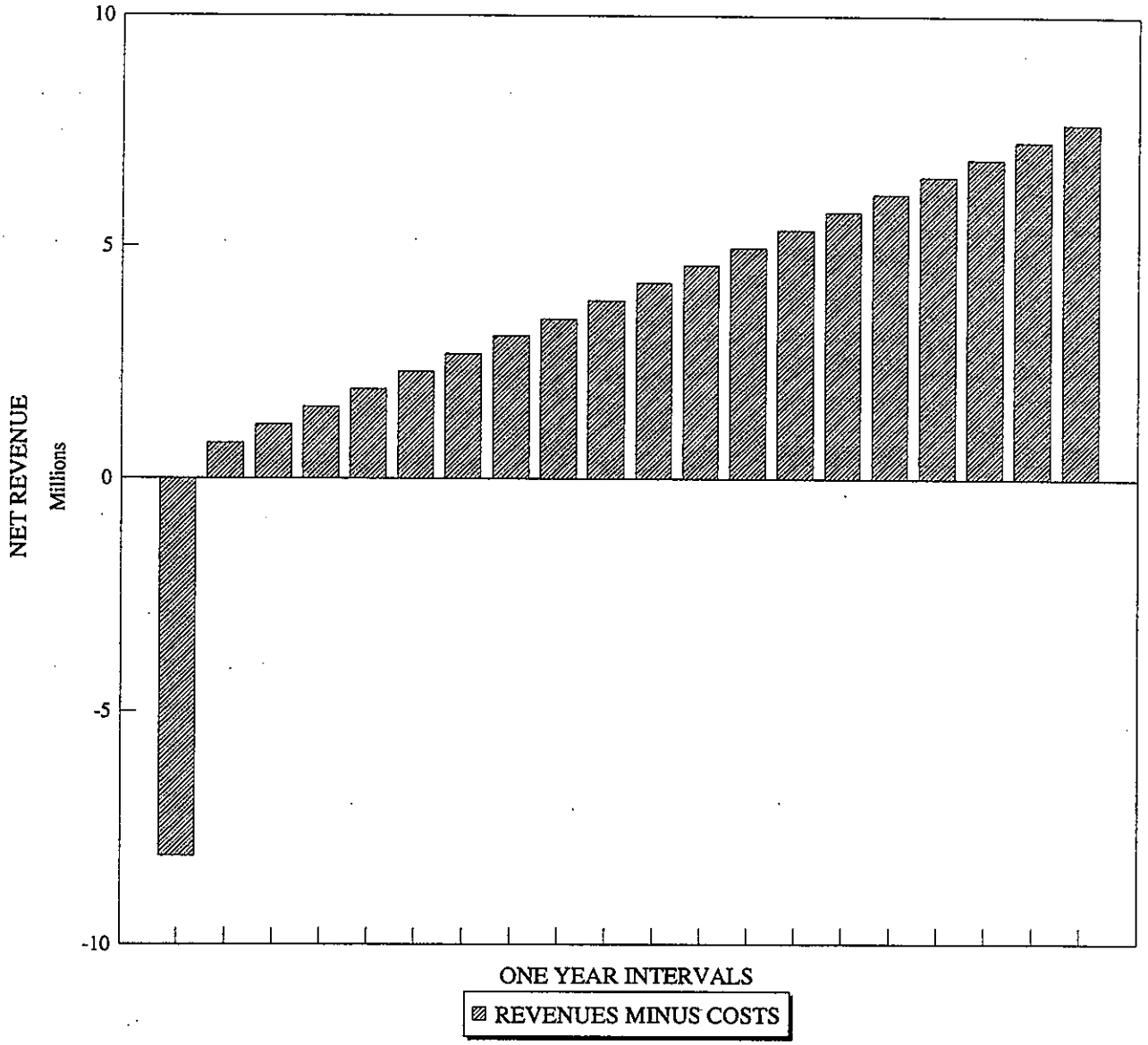
The cumulative benefit (revenues)based on the development plan and stated assumptions is estimated as $93,117,500. The cumulative public costs on the same basis is $21,121,150. The benefit cost ratio of these figures is 4.4 to 1. As discussed earlier, if one assumes a straight line increase in revenue over the 20 year period, there will be a point when cumulative benefit minus cumulative costs passes the break even point. This is shown graphically on the attached chart entitled Breakeven Schedule. A second chart entitled Estimated Net Costs and Revenues shows revenues minus costs on an annual basis.

While the costs and revenues might be split between the State and the Town of Newtown, such a split is difficult due to the extent to which certain infrastructure costs might be privately funded. This is particularly the case with improvements to the road network. In addition, a portion of road improvements might be funded with federal funds. Therefore, the total benefit cost ratio is a more accurate way to present the above analysis.

BREAKEVEN SCHEDULE



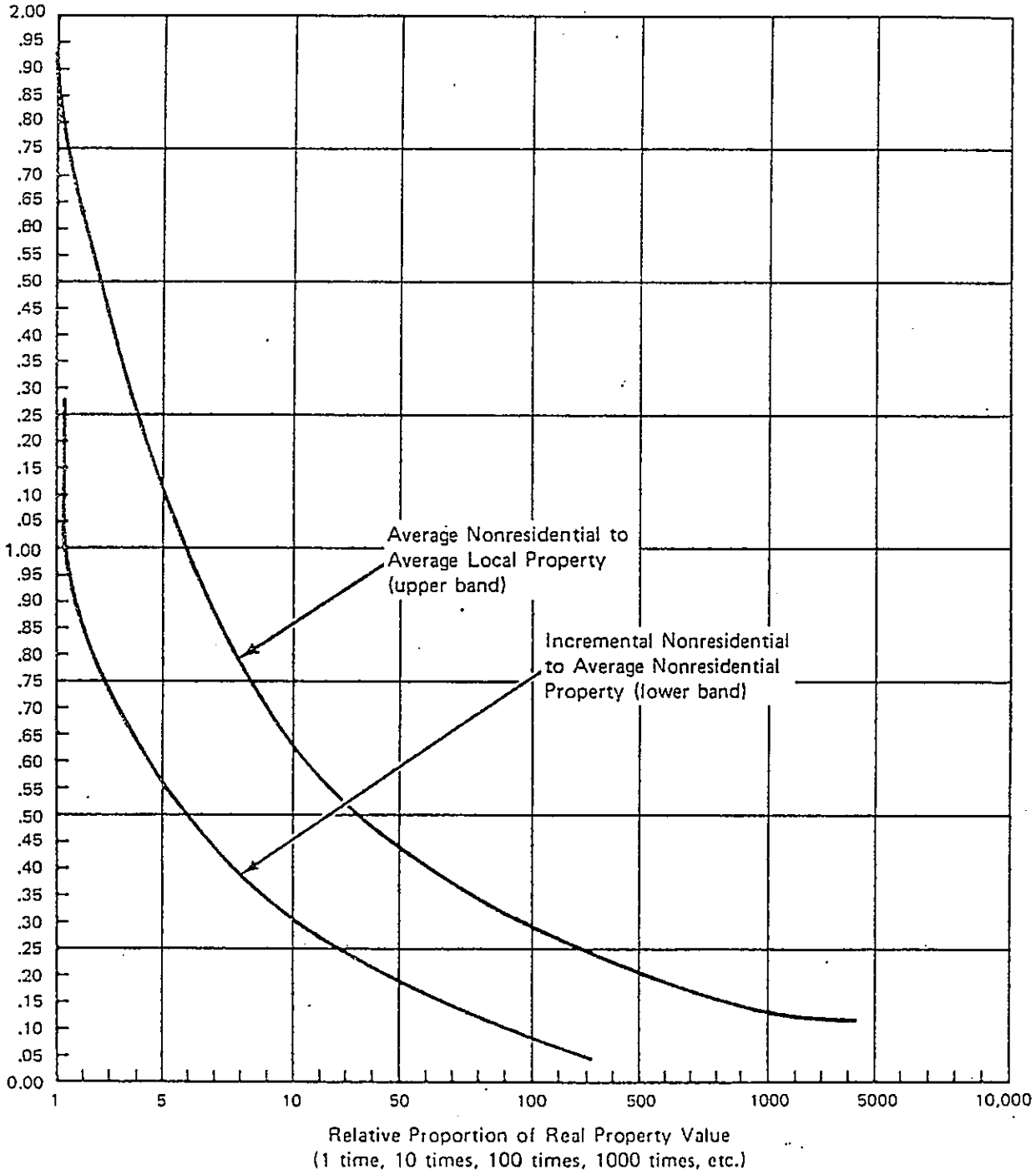
ESTIMATED NET COSTS AND REVENUES



ATTACHMENT A

EXHIBIT 6-3

REFINEMENT COEFFICIENTS FOR THE PROPORTIONAL VALUATION FISCAL IMPACT METHOD



Source: Case Studies of Nonresidential Impact—Rutgers University, Spring, 1977.

PART XI

ACCESS MANAGEMENT

The management of existing and future access points or curb cuts is essential to providing safe and efficient traffic flow within the Hawleyville study area. By minimizing and strategically locating curbcuts along Route 6 and Route 25, conflict points between vehicles entering the roadway and vehicles traveling through on the roadway will be reduced, thus leading to the safe and orderly flow of traffic.

Study Area

Sections of Route 6 and Route 25 within the study area were selected and subsequently reviewed to determine where existing curbcuts could either be eliminated, relocated, or improved. The following sections of roadway were reviewed:

Route 6 Bethel Townline to Route 25

This section of highway represents the southwesterly portion of the study area. It was selected for study based on the projection of future development and the nature of the existing development relative to property access. Route 6 is posted for 40 miles per hour with adjacent land uses consisting of mixed residential and commercial. Curb cuts along this section of highway are often excessively wide, or are unnecessary. This section of highway has less curbcuts per length of roadway when compared to the section of Route 6 located immediately to the west in the Town of Bethel. See Figures 29 through 31.

Route 25 Old Hawleyville Road to "Hawleyville Center"

This section of highway represents the northcentral portion of the study area. It was selected for study based on the projection of future development and the nature of the existing development relative to property access. Route 25 is posted for 40 miles per hour with adjacent land uses consisting of mixed residential and commercial, including a fire house, post office, deli, lumber

DRAWN F.L.K.
DESIGNED C.J.B.
CHECKED F.L.K.
APPROVED -
SCALE 1" = 100'
DATE 4/1/97
PROJECT NO 96008
CAD FILE NAME CC960601
SHEET NO

FIGURE 29

ACCESS MANAGEMENT PLAN

ROUTE 6 AND ROUTE 25
NEWTOWN, CONNECTICUT

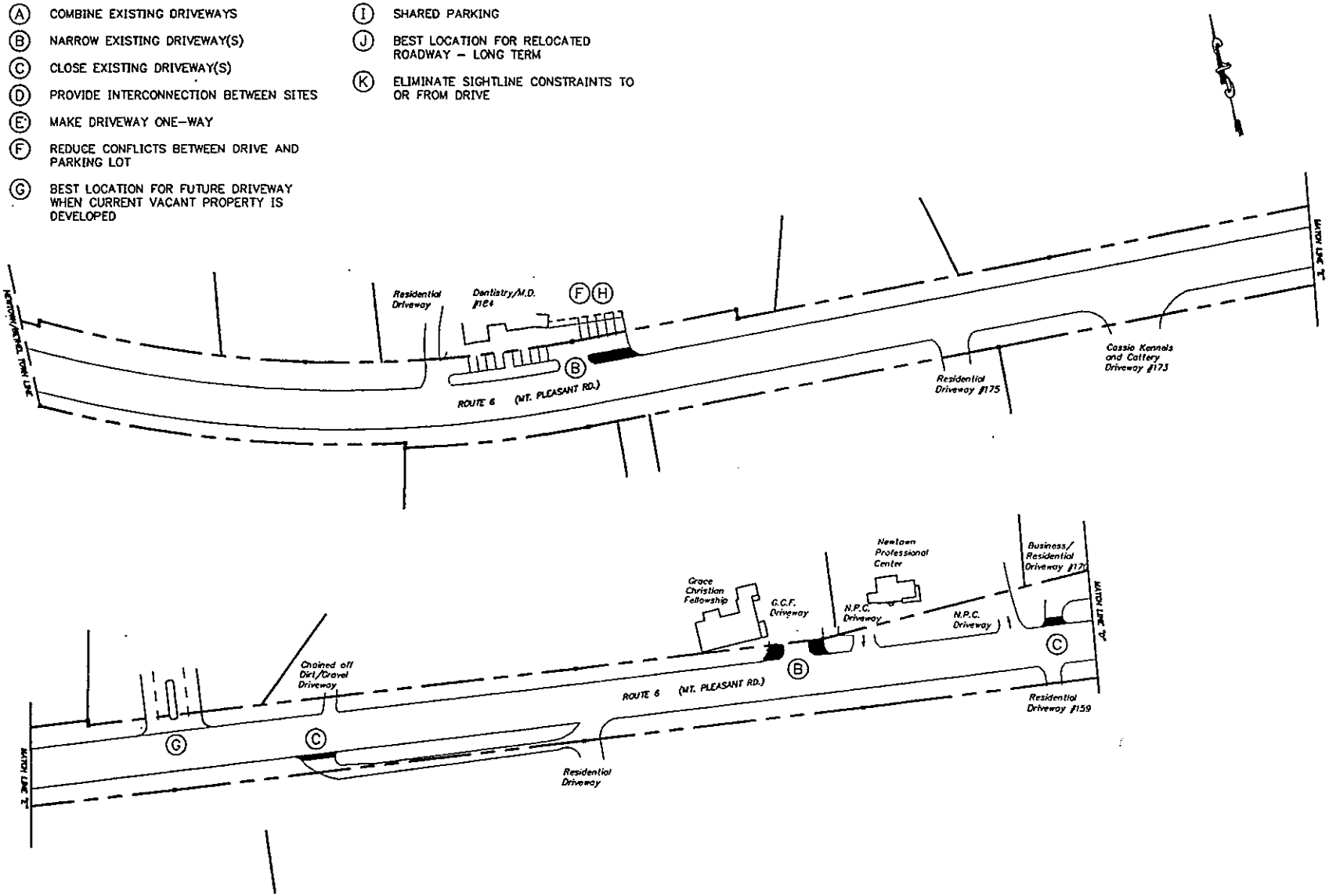
Barrios-Landino Design Group
ENGINEERS/PLANNERS/SURVEYORS
391 DIXWELL AVENUE, 4TH FLOOR
HAMDEN, CONNECTICUT 06518
(203) 248-2960

REVISIONS

NO	DATE	DESCRIPTION

LEGEND

- ● PROPOSED CURB CUT CHANGES
- (A) COMBINE EXISTING DRIVEWAYS
- (B) NARROW EXISTING DRIVEWAY(S)
- (C) CLOSE EXISTING DRIVEWAY(S)
- (D) PROVIDE INTERCONNECTION BETWEEN SITES
- (E) MAKE DRIVEWAY ONE-WAY
- (F) REDUCE CONFLICTS BETWEEN DRIVE AND PARKING LOT
- (G) BEST LOCATION FOR FUTURE DRIVEWAY WHEN CURRENT VACANT PROPERTY IS DEVELOPED
- (H) REARRANGE PARKING LAYOUT
- (I) SHARED PARKING
- (J) BEST LOCATION FOR RELOCATED ROADWAY - LONG TERM
- (K) ELIMINATE SIGHTLINE CONSTRAINTS TO OR FROM DRIVE



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CHECKED T.L.K.
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DATE 6/4/97
PROJECT NO 96058
SHEET NO
FIGURE 30

ACCESS MANAGEMENT PLAN

ROUTE 6 AND ROUTE 25
NEWTOWN, CONNECTICUT

Barrakos-Iandino Design Group
ENGINEERS/PLANNERS/SURVEYORS
29N DOWELL AVENUE, 4TH FLOOR
NAUGATUCK CONNECTICUT 06770
(203) 729-2560

REVISIONS

LEGEND

- ● PROPOSED CURB CUT CHANGES
- (A) COMBINE EXISTING DRIVEWAYS
- (B) NARROW EXISTING DRIVEWAY(S)
- (C) CLOSE EXISTING DRIVEWAY(S)
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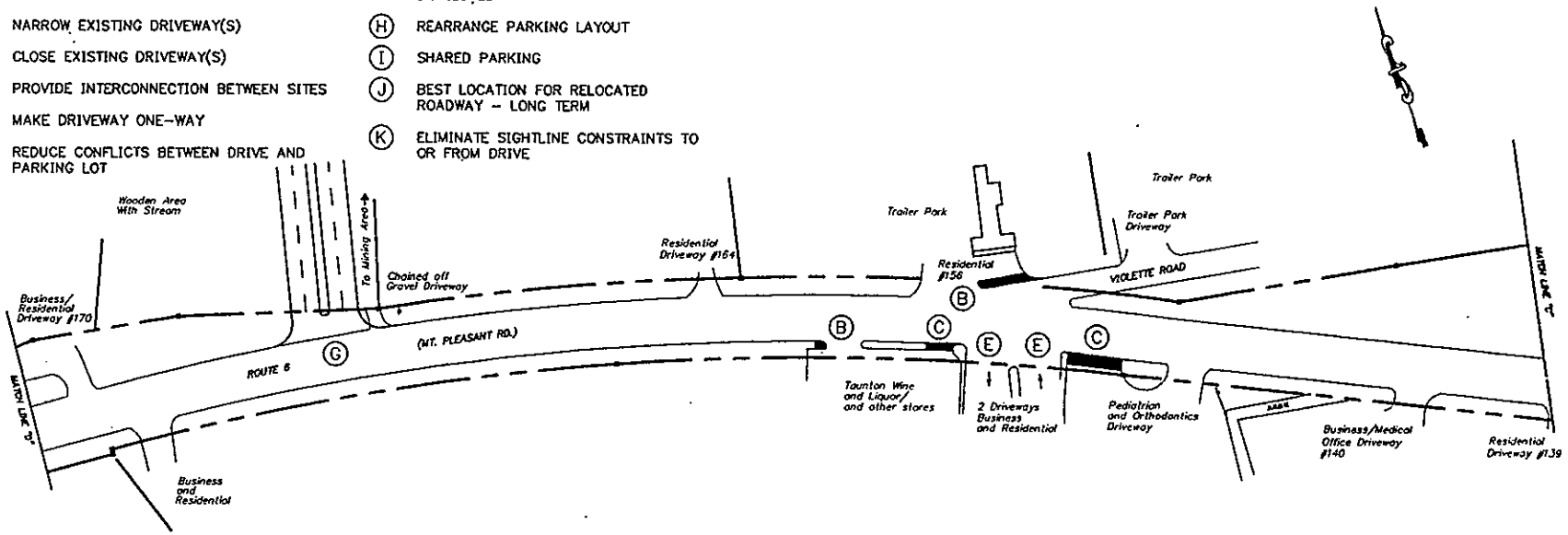
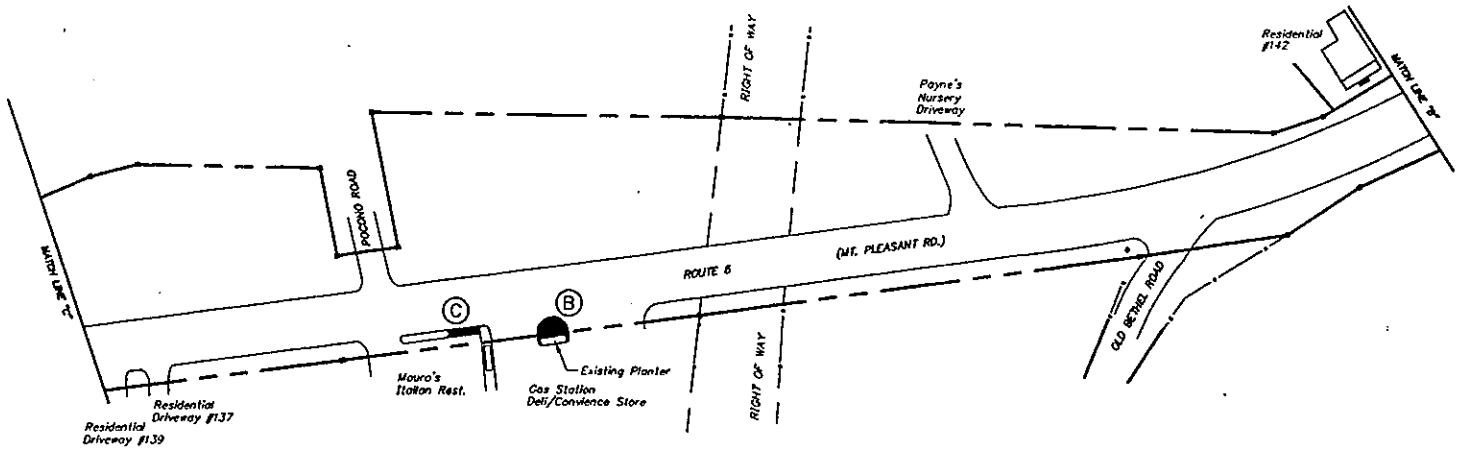
- (J) BEST LOCATION FOR RELOCATED ROADWAY – LONG TERM
- (K) ELIMINATE SIGHTLINE CONSTRAINTS TO OR FROM DRIVE





DESIGNED F.L.K.
DRAWN C.J.B.
CHECKED F.L.K.
APPROVED —
SCALE 1" = 100'
DATE 4/4/97
PROJECT NO. 99058
CAD FILE NAME CC505803
SHEET NO.
FIGURE 31

ACCESS MANAGEMENT PLAN

ROUTE 6 AND ROUTE 25
NEWTOWN, CONNECTICUT

Barbiks-Landino Design Group
ENGINEERS/PLANNERS/SURVEYORS
2311 DIXWELL AVENUE, 4TH FLOOR
HAMDEN CONNECTICUT 06518
(203) 248-2960

NO. | DATE | REVISIONS

LEGEND

- ● PROPOSED CURB CUT CHANGES
- (A) COMBINE EXISTING DRIVEWAYS
- (B) NARROW EXISTING DRIVEWAY(S)
- (C) CLOSE EXISTING DRIVEWAY(S)
- (D) PROVIDE INTERCONNECTION BETWEEN SITES
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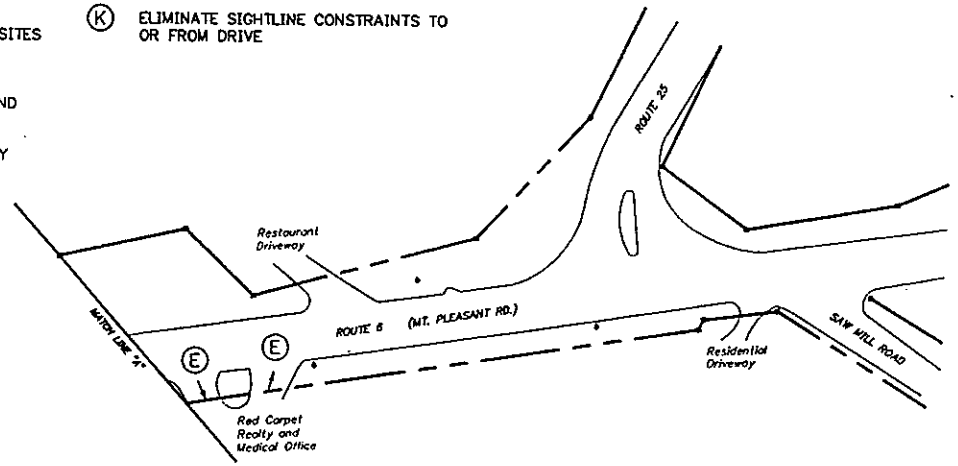
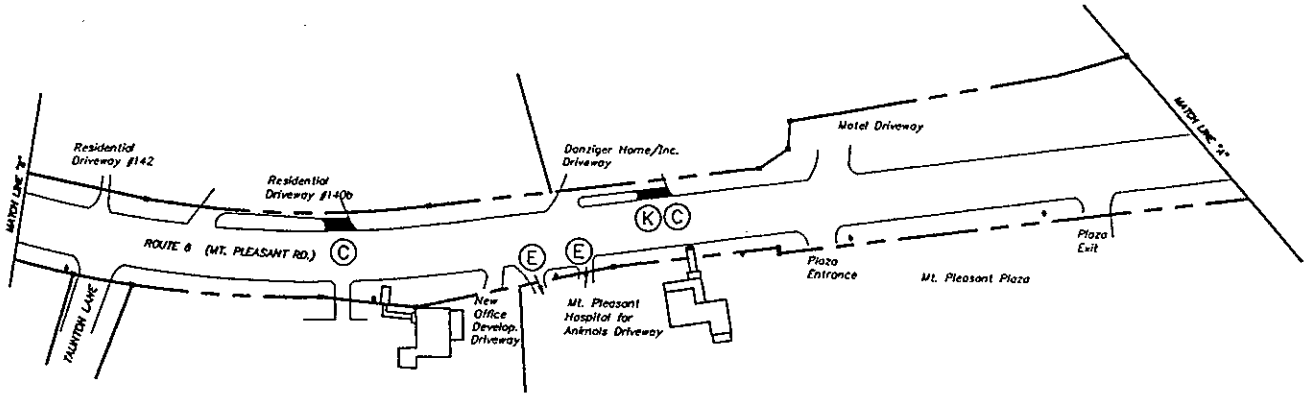
- (H) REARRANGE PARKING LAYOUT
- (I) SHARED PARKING
- (J) BEST LOCATION FOR RELOCATED ROADWAY – LONG TERM
- (K) ELIMINATE SIGHTLINE CONSTRAINTS TO OR FROM DRIVE





yard and leather goods concentrated within the northeast quadrant of the Route 25/ Maybrook Rail Line intersection. Curb cuts along this section of highway are often excessively wide (or are nonexistent), and may be unnecessary. This section of highway has less curb cuts per length of roadway when compared to the section of Route 6 located immediately to the west in the Town of Bethel or Route 7 in Brookfield. See Figure 32.

Access Management Plan

General "rules" that should be followed for access management as properties are developed and redeveloped include:

- Provide access to a side street whenever possible.
- Encourage the sharing of curb cuts by two or more adjacent property owners.
- Limit number of curb cuts as much as practical.
- Align curb cuts opposite each other to prevent "off set" intersections.
- Provide opportunities for "internal" connections between parcels.

A detailed access management plan, shown at a larger scale, is contained in the Appendix which describes the suggested actions to implement. This plan contains specific recommendations for each cub cut which can be used as a guide for future curb cut management.

The Planning and Zoning Commission should consider the adoption of this access management plan to provide guidance in the review of specific site plan applications.

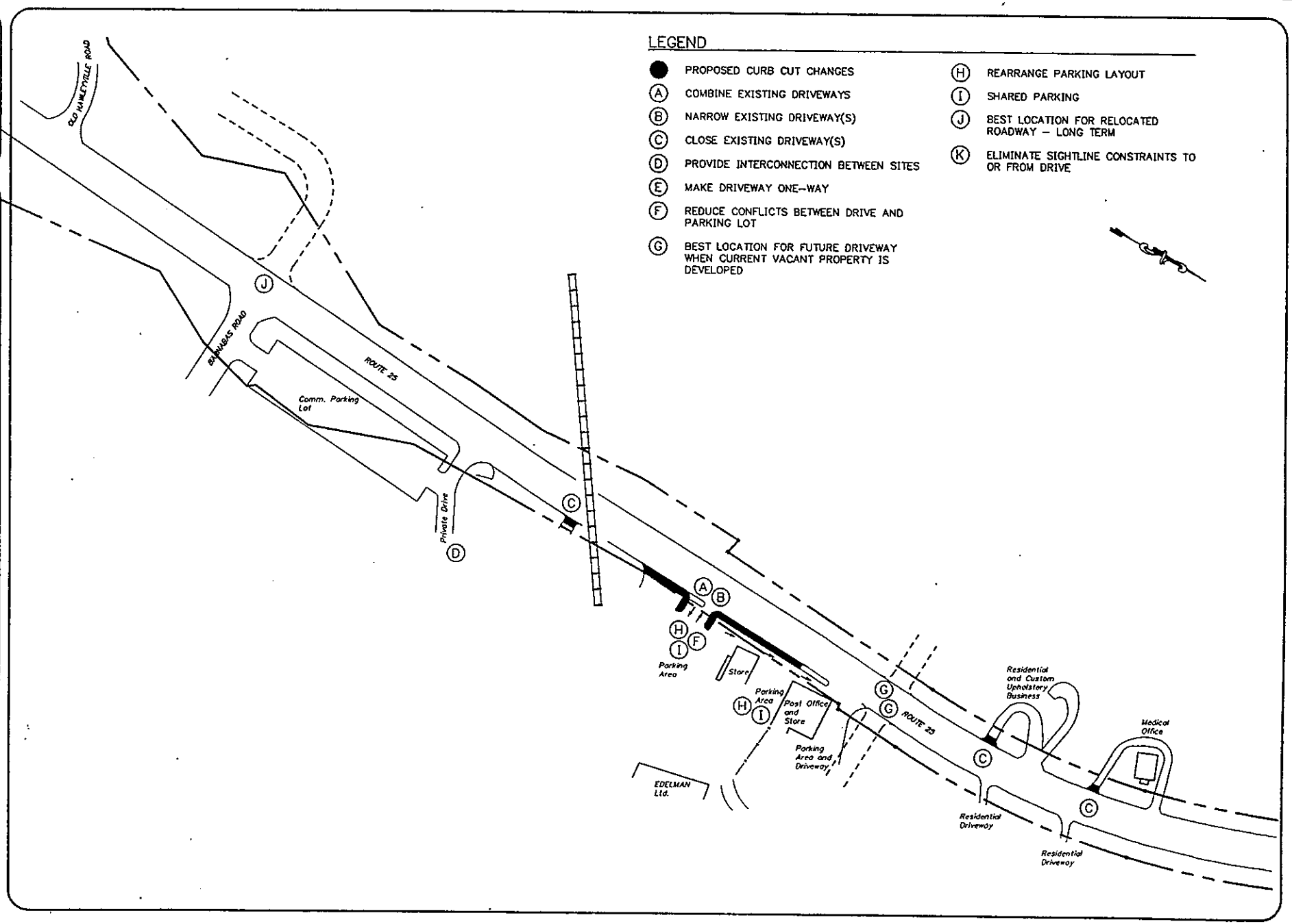
FIGURE 32

ACCESS MANAGEMENT PLAN

ROUTE 6 AND ROUTE 25
NEWTOWN, CONNECTICUT

Bertkau-Landino Design Group
ENGINEERS/PLANNERS/SURVEYORS
29N DEWELL AVENUE, 4TH FLOOR
HAMDEN, CONNECTICUT 06518
(203) 248-2900

REVISIONS



PART XII

CONCLUSION AND FINAL RECOMMENDATIONS

Conclusions

Based upon the extensive multi-disciplined analysis of the Exit 9 Hawleyville Area presented in the preceding chapters, a market-based comprehensive strategy for conservation and development has been prepared. This strategy provides the opportunity for significant economic development activities without adversely impacting the basic character of Hawleyville or overburdening the natural or built environment. Implementation of this strategy in concert with a systematic capital investment program will result in a stronger economic base for Newtown, the Region and the State. This economic base growth will have positive cost/benefit impacts for Newtown and the State.

This fiscal impact is beneficial to the Town of Newtown since there will be a limited number of single family residences developed (46) compared to the estimated 400 single family homes that could be built under existing zoning thereby minimizing the number of school age children. From a state perspective, the quality of development anticipated and the proximity to Interstate 84 will generate net increases in both sales tax revenues and income tax revenues. The corporate office and medical segments are anticipated to be importers of jobs and expenditures for goods and services.

Based on the projected conservation and development scenarios presented, which were derived from the various market data and trends, and input from the Advisory Committee Members and the Newtown residents, the transportation infrastructure improvements recommended will be sufficient to facilitate the traffic anticipated to be generated by the proposed development areas. The most significant improvement, which is anticipated to be needed sometime during the mid-term development scenario, will be the reconstruction of the I-84 bridge over Route 25. CDOT

has previously recognized the need to widen I-84 in this area, which would require widening of the bridge to provide for an additional lane both eastbound and westbound, as well as providing additional roadway width for Route 25 underneath the bridge. A majority of the recommended highway improvements can be constructed within the existing roadway right-of-way. Since the projected conservation and development scenarios extend 20 years into the future, it is suggested that development and traffic levels be periodically reviewed to update the timing of when specific roadway improvements become necessary.

The central components of the strategy are as follows:

- Activities with regional economic impact including corporate offices, a hotel/conference center, retail, medical offices, assisted living and age restricted residential units are concentrated south of Interstate 84 with direct access from Route 25 or Route 6.
- The Hawleyville Center area is strengthened as a mixed use village intended to serve the local area.
- The siting and design of development sites will minimize visual impact on surrounding areas.
- The Barnabas Road area is proposed for continued development as an industrial/distribution area.
- Capital investment for sewer extensions is proposed to be limited to east from the Bethel line on Route 6 and north on Route 25 to Barnabas Road. Over the long term, additional treatment capacity will have to be purchased from Danbury.
- Capital investments in the road network are limited to improvements at intersections and entrances to major development sites. For the most part, the improvements can be accommodated within the existing right-of-way. Many improvements will be funded by private development entities.
- The mixed use nature of the development sites will discourage intra-area vehicle trips. A system of pedestrian linkages and transit routes is proposed to further

limit the number of private automobile trips.

- An access management plan has been developed to increase the efficiency of the road network and to improve traffic safety.
- Provision has been made for future multi-modal transportation opportunities including passenger rail service as a long range option.

Recommended Actions

In order to implement the strategy for the Exit 9 Hawleyville Area, the following actions are recommended:

- The final strategy be adopted as an amendment to the 1993 Newtown Plan of Conservation and Development.
- The zoning strategies contained in the plan be incorporated into specific amendments to the Newtown Zoning Regulation.
- The Access Management Curb Cut Plan be adopted and used as a guide by the Planning and Zoning Commission as part of site plan review.
- The proposed road network improvements that are not likely to be developer funded through CDOT permits be included in the Housatonic Valley Council of Elected Officials and CDOT Transportation Improvement Programs (TIP).
- Funding applications for selected projects should be submitted as soon as possible by Newtown to the HVCEO for funding under the STP
- The Newtown Economic Development Commission adopt the strategy and work with property owners to implement the strategy through a public/private partnership.
- The transit proposals contained in the strategy be submitted to HART for inclusion in its long range planning efforts.
- Programmed improvements to Interstate 84 and its ramp system, and Routes 6 and 25 should be coordinated with Connecticut DOT.

The overall strategy as presented will help realize the area's development potential within the context of existing and future transportation resources and infrastructure. The goal of obtaining a "match" between land use and infrastructure can thus be attained in a managed, well planned approach.

APPENDIX

ADVISORY COMMITTEE MEMBERS

TOWN OF NEWTOWN
Robert Cascella, First Selectman (Town of Newtown), Vice Chairman HVCEO
Elizabeth Stocker, Director of Community Development
Ronald Bolmer, Town Engineer & Director of Land Use Agencies
Thomas Paisley, Planning & Zoning Commissioner
Walter S. Motyka, Chairman of Economic Development Commission

NORTH NEWTOWN HOMEOWNERS ASSOCIATION
Lillà Dean
Frank Johnson

CONNECTICUT DEPARTMENT OF TRANSPORTATION
Jack F. Carey, P.E., Transportation Engineer
Kathryn Husband, Transportation Planner
Drew E. Colburn, P.E., Consultant Design

HVCEO
Jonathan C. Chew, Executive Director
David Hannon, Senior Planner

HVDEP
Peg Daley, Director

CONSULTANTS

Barakos-Landino Design Group
Eve Barakos-Landino, AICP, Principal-In-Charge
Fred Kulakowski, P.E., Transportation Engineer
David Parent, CADD Graphics Coordinator
Pat Gorman, Site Engineer

Harrall-Michalowski Associates, Inc.
Richard Harrall, Principal-In-Charge
Roy O'Neil, Real Estate
Leslie Sprague, Senior Associate

KKO and Associates
David O. Nelson, Director of Transportation
Leora Jaeger, Senior Associate