

ECONOMIC AND HOUSING RECOMMENDATIONS

CITY OF DOVER

MASTER PLAN ANALYSIS

October, 1987

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Planning Department

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This report is the third in a series of reports prepared by Applied Economic Research, Inc. under contract to the city of Dover. The overall purpose of the analysis is to analyze Dover's economic and housing performance in the regional market, to develop a series of economic and housing projections to guide subsequent Master Plan efforts (land use, transportation, capital improvements programming, etc.) and to prepare a series of recommendations that would help the city achieve its economic and housing objectives. Prior reports have analyzed trends in the city and regional economy and have presented projections of future regional and city activity under various assumptions. This report focuses on defining economic/housing objectives and recommendations.

In preparing this analysis, the consultant has been assisted by a task force of Dover residents who have met periodically during the study to review interim materials and to help guide the consultant's efforts. The consultant has also relied on Rist-Frost Associates to analyze some of the city's major physical development opportunities and constraints.

It should be noted that the objectives and recommendations which follow address only economic and housing considerations. As the Master Plan process progresses, land use, environmental, transportation and infrastructure considerations will be incorporated into the overall Master Plan process.

Objective: Balanced Growth for Dover

Dover's opportunities to balance its growth are structured by two distinct sets of considerations: (1) its regional market setting within the rapidly growing Portsmouth/Dover/Rochester metropolitan area; and (2) the city's development policies and investments relative to other communities in the metropolitan area. A brief discussion of each of these follows.

Dover's Regional Role

The Portsmouth/Dover/Rochester metropolitan area is a dynamic economic setting. Between 1980 and 1987, the regional economy added over 12,500 new jobs, just under 21,000 new residents and 10,600 new housing units.

The region's economic prospects are excellent. It has a diverse economic base with a strong governmental component (Portsmouth Naval Shipyard and Pease Air Force Base), first-rate educational facilities including the University of New Hampshire, excellent highway access afforded by the New Hampshire and Spaulding Turnpikes, a growing inventory of corporate headquarters and a wide range of communities offering lifestyles that range from relatively high amenity, urban settings to rural. The Portsmouth/Dover/Rochester metropolitan area has received prominent national attention as one of the nation's

fastest growing and most attractive regional economies.

Our projections are that the region will continue to sustain strong growth during the coming decade. This analysis anticipates that between 1987 and 1995, the region will add up to 19,600 new jobs, 30,000 new residents and 15,900 new housing units.

Most regional economies are dominated by a single, large community. The Portsmouth/Dover/Rochester economy is distinctive in that it draws its strength from a system of smaller communities with strong economic ties. Over the years, these communities have taken on specialized roles. Newington, for example, has emerged as the region's retail center during the past 20 years. Portsmouth's historic theme, its specialized retailing, its restaurants and its harbor setting have a drawing power that extends beyond the metropolitan limits.

Dover's specialized role in this regional setting has three major facets. First, measured in relationship to the city's share of the region's population (15% in 1987), the city has been attracting a large share of the region's employment growth. Between 1980 and 1985, Dover captured 30 percent of the region's employment growth. The city's role is particularly unique in manufacturing employment. While the region sustained a loss of 3,000 manufacturing jobs, Dover managed to post a modest increase in manufacturing employment between 1980 and 1985. The city also posted very healthy increases within its non-manufacturing employment categories.

A second major aspect of Dover's regional role is that it is an important source of housing for the region. Between 1980 and 1987, dwelling units authorized by building permit in Dover represented 15 percent of the region's total. On first blush, this is proportionate to the city's share of the region's 1987 population. However, as a relatively mature community, standard economic thinking would find Dover capturing a smaller share of regional housing growth as suburban communities grow more rapidly.

The city's strong residential growth is especially evident in recent months. There are currently several thousand dwelling units which have either received Planning Board approval or have been proposed for approval prior to the recently invoked moratorium. This inventory of approved and proposed units during the past year or so is well in excess of the 1,650 units authorized in Dover by building permit between 1980 and 1987.

A third aspect of Dover's performance relative to the regional economy is that it has experienced a significant erosion of its retail role between 1980 and 1987. This erosion has occurred as a result of the substantial increase in the inventory of retail space in Newington and Portsmouth. Although Dover has witnessed a substantial increase in its inventory of grocery store space, the expansion in its inventory of shoppers goods space (items typically purchased in a department store) has not kept pace with regional trends.

As Dover looks to its future, the anticipated strong regional economic performance provides Dover with an opportunity to balance its

growth. This regional economic growth could be thought of as the raw material from which Dover has the opportunity to frame a regional role that results in a balanced community with an appropriate mix of housing, industrial and commercial activity.

City Policies

Dover's past role in the regional economy can be traced to several important city attributes and policies. First, Dover is centrally located within the economic region. This has the dual benefit of making it relatively easy for Dover residents to commute to jobs throughout the metropolitan area, and making it easier for residents of other metropolitan communities to commute to jobs in Dover. This central location is further accentuated by the Spaulding Turnpike which bisects the city, affording easy access to the area's major employment centers.

A second major asset that has contributed to Dover's regional role is that it has a substantial inventory of developable land, with much of that land serviced by city sewer and water.

Thirdly, Dover has been willing to accommodate both residential and non-residential development. A major rezoning several years ago significantly increased the availability of residential sites capable of supporting higher density housing. The result has been a substantial increase in completed and approved multi-family housing. Although the capacity of some city services has been strained by the considerable volume of approved and proposed residential developments, it was not until 1987 that the city found it necessary to slow its rate of residential expansion.

Within the industrial area, the Dover Industrial Development Authority is the only actively funded authority in the region is to increase the community's employment base.

Finally, by virtue of its extensive capital improvements in downtown, the city has sought to preserve its commercial base.

In short, the city of Dover has been well aware of obligations and opportunities to shape its growth. What may have been lacking in the past--a focused effort to direct its growth into a desired pattern, will be afforded by the current Master Plan effort. Toward this end, the following objectives and recommendations are offered.

Objective 1: Assume Fair Share of Regional Housing Activity

Our projections call for the addition of almost 16,000 new housing units in the region during the next eight years. This figure represents 1.5 times the number of housing units currently in the city of Dover. Dover's recent experience indicates that it is a favored location for regional housing development. The city currently has over 2,000 acres of vacant land, close to sewer and water, zoned for residential purposes. Without some policy to guide residential development, both the Master Plan and the city will be set adrift. In several landmark decisions, the New Hampshire courts have established

that communities have a responsibility to assume a fair share of regional housing activity. Furthermore, as a diverse city, Dover needs residential development to support a growing industrial and commercial, non-residential tax base.

Dover has historically captured 15 percent of the region's new housing units. This share holds true for the 1980-1987 period. Also, Dover currently houses 15 percent of the region's population.

It is our recommendation that Dover's fair share of regional housing activity is best reflected in this 15 percent share. It is our recommendation that during the balance of the Master Plan process, including land use/zoning considerations, the planning of the city's infrastructure, and transportation planning be built around Dover capturing 15 percent of regional housing activity.

This 15 percent of regional activity would have the city of Dover experiencing an increase of 2,400 housing units over its current base of 10,400 units between 1987 and 1985. In turn, these additional units would find the city's population growing from its current 26,100 to a figure of 31,700 during the projection period.

To implement this recommendation, the city will have to monitor the permitting process within the region. If the city's development activity exceeds 15 percent of regional activity, the city should consider incorporating slow-down provisions into its development regulations that would result in an approximate 15 percent share of regional activity.

Affordable Housing

With an average single family home price in excess of \$150,000 approaching \$600 per month for two bedroom units, affordable housing is emerging as a major issue in Dover, in the seacoast region and in the State of New Hampshire. Some feel that unless relief is provided by either the marketplace or government action, a shortage of affordable housing will constrain future employment growth in the region and the state.

Dover has historically met its fair share of the region's low and moderate income housing needs. With 15 percent of the region's population, the city accommodates 30 percent of the region's assisted housing. Its active role in the region's rental market, the inventory of units managed by the Dover Housing Authority (currently *** units) and its inventory of older housing units have made it possible for the city to equitably address regional low and moderate income housing needs.

The appropriate objective is to recognize that it is far more difficult today to continue to meet those needs than has been the case in the past. There are virtually no federal subsidized housing programs capable of freeing up new and existing inventory for the needs of low and moderate income households. As a result of the region's strong economic performance, the region's housing inventory has faced substantial pressures which have caused home prices and

rents to rise faster than incomes. With this in mind, the following recommendations are made:

As the Master Plan progresses, consideration should be given to establishing an affordable housing zone. The zone could be a floating zone which would be invoked by special exception, if the site meets specified criteria as to size, setbacks, utilities, etc. If authorized by special exception, a developer would be granted a 20 percent density bonus and relaxation of certain subdivision requirements, if at least 20 percent of the units were set aside for the needs of low and moderate income households. Deed restrictions should limit future price appreciation for those low/mod units.

Manufactured home parks, which are currently authorized only in the R-40 zone by special exception, should be permitted by right in at least one zone, with appropriate setback and density provisions, and should be permitted by special exception in a wider range of residential zones within the city.

The city, possibly acting in conjunction with the Dover Housing Authority, should encourage developers to participate more actively in the New Hampshire Housing Finance Authority's single family mortgage assistance program.

The city should encourage and support regional solutions to the affordable housing issue. Although both Portsmouth and Rochester have active housing authorities, many of the region's smaller communities are not addressing low and moderate income housing needs.

Dover's current inventory of assisted units is in balance with needs, as reflected in relatively short waiting lists for elderly and family units. The city should support the Dover Housing Authority's efforts to maintain this balance in the future through bonding, development incentives and other appropriate measures.

High End Housing

It is important that Dover continue to play a role in the region's high end housing market. The city's Dover Point area has the rural feeling, regional accessibility, and water frontage necessary to support a reasonable inventory of expensive, single family homes. In addition to preserving this area for continued single family home development, the city should give thought to instituting planned unit development provisions as it revamps its zoning ordinance. Experience

in other communities has shown that planned unit developments, which can provide for a diversity of housing types and the preservation of community open space, can efficiently provide high-end housing needed to maintain a balance in the city's social and economic structure.

Objective 2: Prominent Industrial Role

As noted in the preceding paragraphs, one of the distinguishing characteristics of Dover is that it is a regional employment center. A strong role in the regional employment markets tends to diversify the city's tax base and provide nearby employment opportunities for city residents.

It is paramount to the city's long-term economic diversity that it set aside an adequate supply of industrially zoned land. In the face of strong regional housing pressures, the city has lost some prime industrial land to small, low-density residential subdivisions. This residential development could have occurred on other parcels in the city, but the eroding supply of industrial land cannot be replaced.

Currently the city has less than 300 acres of vacant, industrially and commercially zoned land served by (or reasonably close to) sewer and water. This inventory is not adequate to accommodate anticipated demand. At our projected level of absorption, this inventory will last less than five years. Consequently, the city's future role as an employment center is jeopardized.

We recommend that the city consider a rezoning of land on either side of Columbus Avenue that is currently zoned R-20 and R-40. This land is reasonably close to the Spaulding Turnpike, can efficiently be served by sewer and water and is relatively flat. Its only drawback is that portions of the land are wet. It is recommended that as the Master Plan progresses, the land use component of the plan investigate soil conditions in this area more carefully to determine the appropriateness of a rezoning to industrial uses. This area is located adjacent to other non-residential sites and, unlike other potential industrial areas in the city, has not experienced a significant encroachment of residential activity.

Zoning more land for industrial purposes, in and of itself, will not guarantee immediate availability. In some cases, the city will have to extend utilities. In other cases, immediately placing that land on the market may not fit the owner's investment objectives. Consequently, we recommend that the Dover Industrial Development Authority (DIDA), with appropriate assistance from the city, acquire an industrial tract with some 50-100 acres, making that tract immediately available and actively promoted. For a number of years, DIDA has had an inventory of industrial sites.

Objective 3: Diversify Downtown Dover

Downtown Dover is an important source of employment and non-residential tax base to the city. Moreover, a healthy downtown is important to the city's progressive and prosperous image.

As a result of both public and private investments during the past decade, downtown Dover's investment climate is relatively healthy. Its streets and walks have been revamped to contemporary standards; most of its buildings have been tastefully rehabilitated. Although upper floor vacancy is characteristically low, first floor occupancy is healthy.

Downtown retailers nonetheless face special challenges. In the highly mobile seacoast economy, shoppers have been drawn away from downtown to the massive and convenient concentrations of retail space in Newington, Portsmouth and Kittery. Residents of Dover and surrounding communities are no longer a captive market for downtown retailers. These same forces are restructuring downtown retailing across the nation. A reversal, in which downtown can once again capture the lion's share of its resident market, is not on the practical horizon. Instead, downtown must draw its strength from new sources. If the investment climate in downtown Dover is to be made stronger, then new sources of support must be strengthened.

In a market sense, Dover must take steps to diversify the base of support for downtown merchants and building owners. This means that downtown Dover must be thought of as a diverse residential, employment, and retail center. New office industrial workers and residents in downtown will serve two purposes: (1) filling upper floor space that is underutilized; (2) providing a reasonable, captive market for downtown retailers. In short, the city should not shy away from, but rather encourage, investments that increase the number of residential units and the amount of space devoted to office and industrial uses in downtown.

Achieving this will, in turn, require a solution to the much discussed parking issues in downtown. The Wilbur Smith study, underway, will help to insure that the city's current parking inventory is managed to its maximum potential. Although there seems to be debate as to whether the current supply of parking is adequate on an overall sense, it is likely that more intense use of downtown's building inventory, including the Pacific Mills and the upper floors of many downtown buildings, will require more parking, conveniently located.

It is recommended that the city consider establishing a special taxing district in downtown for purposes of acquiring sites and developing additional parking. A special district would enable the city to surcharge tax rates to offset the capital cost of new parking. It is recommended that parking fees be adequate to offset operating expenses. The experience in other New Hampshire communities has been that parking fees cannot, in and of themselves, amortize capital costs and operating costs.

Traffic is also frequently cited as a problem in downtown. A traffic analysis is anticipated as a subsequent step in the Master Plan process. That traffic analysis will necessarily deal with downtown's traffic issues.

The management and promotion of downtown is currently directed by a subcommittee of the Chamber of Commerce. There is no full time

staff available and, as is characteristic of such efforts, the effectiveness of the organization tends to rise and fall on the commitment of volunteer efforts. If downtown Dover is to stage effective promotions and is to recruit new occupants, a stronger organization with full time staff will be needed.

It is recommended that a downtown strategy be established and a strong, well-funded management and promotional organization be instituted. The organization should be funded by contributions from property owners, merchants and downtown organizations. Ideally, the organization could be funded in conjunction with the downtown special district via an add-on to the property tax rate within the district. It is not clear whether funding for this purpose is enabled by existing state legislation.

Objective 4: Restore Cocheco Waterfront

This objective is closely related to strengthening downtown Dover's investment climate.

An important and attractive facet of Dover's history has been lost. That is, like Portsmouth and Newburyport, Dover was once a seaport city, with the Cocheco River providing access to Great Bay and the Atlantic Ocean. Today, only one small marina on the edge of downtown serves to continue Dover's ties to the sea.

Along the entire seaboard, communities have capitalized on a potent combination of water, boats, retailing, residential units and office space. Newburyport, Kennebunkport, Ogunquit and Portsmouth provide close-at-hand examples of successful adaptive reuse and new investment drawn by waterfront locations.

Dover has a strong opportunity to attract an appealing mix of shops, offices and residential units along its downtown Cocheco waterfront. The land currently occupied by its public works garage and by the soon to be abandoned sewerage treatment plant, affords a unique opportunity to craft an inviting mix of marina, retail, office and residential space. In doing so, it would draw an important entertainment component to the downtown scene, place excess public lands on the local tax roll and recapture the flavor of the city's historic past. In the process, the city would gain a new public works facility, most probably at the expense of the site's private developer.

It is recommended that the city immediately begin drafting a development strategy for the public lands adjacent to the Cocheco River in downtown. That strategy should:

Inventory the land the city can make available to a private developer.

Develop a conceptual Master Plan for the development of the site to incorporate marina, retail, office and residential uses, along with the necessary supporting parking, etc.

Indicate a rezoning, most probably to the Cocheco Waterfront District (CWD) zone, that would enable a multi-use development on the site.

Identify an alternative location for the public works garage.

Resolve potentially significant access problems.

Address sewer, water, and other utility issues (including the power lines which cross the Cocheco River downstream from downtown).

Appraise the market value of the land to be offered.

Prepare a developer's kit outlining the specifics of the proposal and the city's expectations of developers.

Solicit developer responses to this kit via regional and national media exposure.

Review developer responses and make a recommendation as to an appropriate developer, after consideration of the viability of the plan, innovative design considerations and the financial strengths/experience of the firm.

It is recommended that a Cocheco Waterfront Task Force be formed by the Dover City Council to oversee this strategy with representation drawn from:

The City Council;

City staff, including the city manager, planning director, director of DIDA, public works director;

Representatives from the Planning Board;

Citizen representatives.

It is recommended further that the City Council fund the Task Force adequately to accomplish its objective of drafting an appropriate development plan and selecting a development entity. The Task Force may need outside consulting and certainly would experience costs in preparing and distributing the developer's kit. Costs could be recovered through the sale of the land.

Objective 5: Strengthen Retail Performance

With the exception of the grocery store component, which has seen a significant increase in the city's inventory of space since 1980, Dover's retail performance has not kept pace with market area growth. We estimate that currently Dover residents spend 60 percent of their

shoppers goods (apparel, gifts, furniture, etc.) dollars outside Dover. This represents a significant increase since 1980, when residents spent only 35 percent of their shoppers goods dollars outside the city. These dollars flowing out of the city decrease the profitability of existing merchants, reduce Dover's non-residential tax base and cause Dover residents to drive further to meet their shoppers goods needs.

The dynamic growth expected both regionally and in the city, will support a significant increase in the region's inventory of retail space during the coming years. It is certain that new shoppers goods space will be added to the region's inventory on a continuing basis over the next eight years. It is not at all clear, however, that Dover will be able to secure a balanced, fair share of that activity.

Our analysis shows that capturing a modestly higher proportion of the shoppers goods spending of residents of Dover and its surrounding communities can support a significant increase in retail space. If the capture rate of Dover's primary and secondary market areas were increased to a figure that is 5 percent higher than the current capture rate (an increase from a 40% to 45% capture of Dover resident expenditures, for example), Dover would be able to support an additional 200,000 square feet of shoppers goods space between 1985 and 1995. It is our view that there is a large community shopping center of some 250,000-350,000 square feet that will locate in Dover, Rochester or Somersworth sometime during the next several years.

It is not unusual for communities to discourage the development of new shopping centers, particularly if it is felt the shopping center will pull support from downtown merchants. We see a different environment in the Dover/seacoast area. As noted above, downtown merchants already must compete with a strong concentration of retail space in shopping centers outside the city. The relatively high occupancy rate on first floor retail space in downtown Dover indicates that the city's merchants have adapted well to an extremely competitive market environment. Those merchants are drawing a growing proportion of their support from market segments that are relatively isolated from new shopping centers. Furthermore, if the city were to discourage the location of a shopping center within its boundaries, market demand would support that center in an adjacent community. The highly fluid movement of shoppers dollars already in-place and the location of the center would have similar effects on downtown merchants. In fact, Dover's role as a retail community would be further eroded, possibly to the greater detriment of downtown merchants.

It is our recommendation that the city take steps to frame an environment in which a large community center can locate within the city's boundaries, rather than in the boundaries of an adjacent community. Toward this end we would recommend that the city seek additional land to be zoned "B-3," the city's principal zone that is conducive to the development of a large shopping center. In the course of this analysis, the most promising site for an expansion of the B-3 inventory is extending the existing B-3 zone west of Exit 9 along the Sixth Street Extension, westerly along Sixth street. This would result in minimal disruptions to the city's traffic patterns and

appears to be a viable site for additional commercial space.

Secondly, we recommend that the range of permitted uses within the B-3 zone be amended to eliminate multi-family dwellings, which can now be authorized by special exception. Multiple family dwellings can locate in a number of city zones and there is a possibility that if this provision remains in the ordinance, the city's small inventory of B-3 sites could be lost to multi-family residential development.

Analysis of Study Areas

In framing the above recommendations, six study areas were investigated from the perspective of establishing their ability to meet the above cited economic/housing development objectives. Applied Economic Research viewed these six study areas from the perspective of their economic and market potentials. Rist-Frost Associates studied three of these study areas more intensively, examining their physical characteristics, the availability of utilities and transportation issues. Their report is included as Addendum A to this analysis. The findings of this analysis with respect to these six study areas are discussed in the following paragraphs. There is some overlap between these observations and the recommendations set forth in the preceding paragraphs.

Study Area 1: Exit 9 at Sixth Street

Exit 9 is emerging as an important development node for the city. The anticipated development of the Liberty Mutual site, which would be served by this interchange, will significantly increase its significance to the city during the coming years. Virtually all of the city's vacant land zoned B-3 is located at this interchange.

Rist-Frost Associates has analyzed soils within the interchange. The soil data indicate that some of the land in the westerly quadrant of this interchange, north of the Sixth Street Extension falls into the wet soils categories. In general, however, the land can be adapted to a wide range of uses.

Sewer and water services will be extended into the general neighborhood as a result of the Liberty Mutual development program. This will significantly increase the development opportunities within this study area.

The Sixth Street Extension B-3 zoned land represents the city's major opportunity to accommodate a large shopping center. It is conceivable that this interchange could also support the development of a hotel and office space. It is important that the city not allow subdivision of the prime Sixth Street frontage into smaller lots. The state's granting of only one access from the northerly side of West Street should help to preclude the development of fast foods restaurants which would erode the significance of this important site as the city seeks to accommodate a large shopping center, but the city should consider imposing a minimum lot size of three acres in the zone.

It is recommended that the B-3 zone be extended along the easter-

ly side of Sixth Street to the terminus of the existing I-1 zone. This land is currently zoned R-40 and has the ability to support more intense usage to the benefit of the city's tax base.

Study Area 2: Intersection of Columbus Avenue, Upper Factory Road and Tolend Road

Study Area 2 centers on the intersection of Columbus Avenue, upper Factory Road, and Tolend Road. The westerly side of this study area is currently zoned R-40 and the easterly side is currently zoned R-20.

It is recommended that as the Master Plan process progresses, this area be carefully investigated for rezoning to industrial uses. The area is effectively sandwiched between the city's ETP zone and its I-1 zones. Access is reasonably good, although a roadway connecting Sixth Street Extension and Upper Factory Road would improve access to the Spaulding Turnpike. Utilities can be extended to the site. Rist Frost Associates' analysis indicates that there are some wet soils scattered in this area. The topography is favorable to the requirements of industrial users.

Study Area 3: Dover Point

This study area consists of Dover Point. Currently this study area is accommodating the city's most expensive new housing. It is recommended that this role be preserved in the future. The study area is expected to accommodate the expanded sewerage treatment plant programmed to be developed during the next five years. This will increase the pressure for this area to accommodate higher density residential development. To some degree, the market may well dictate continued use of this study area as a place for high-end housing. In any event, the current large lot size has worked effectively in combination with Dover Point's amenities to carve this favorable niche in the regional housing market. We believe that niche should be continued.

Sub-Area 4: Bellamy River

A significant portion of this sub-area has been acquired by an active developer in the seacoast market. This sub-area, with frontage along the Bellamy River, represents one of Dover's prime residential development parcels. The area includes attractive natural habitat areas along the Bellamy River. The development of this parcel could significantly alter Dover's residential patterns during the coming years.

As noted in Rist-Frost Associates' analysis of county soil data, there is a substantial amount of wetland associated with this parcel. Another complicating development factor is that an intense development of this sub-area could carry with it substantial traffic impacts.

This parcel appears to be particularly well-suited to a planned unit development concept with a diversity of housing types clustered on its sub-areas with better soils. Currently the city does not have

a planned-unit development provision in the ordinance. It is recommended that such a provision be framed as a revision to the city's zoning ordinance and that the planned unit development provisions be drafted in such a way that they are appropriate to the Bellamy River sub-area.

It would be advantageous to the city to encourage the acquisition of some of the wetlands adjacent to the river. This represents the last significant natural habitat of its type in the city.

Sub-Area 5: Downtown Dover

AER's observations on downtown Dover and its investment climate have been discussed above. In addition to the traditional downtown center, this sub-area includes peripheral areas that have some of the city's older housing stock. These peripheral areas have been the focus of the city's Community Development Block Grant funding and it is recommended that the city continue to focus its Community Development Block Grant funds on these peripheral residential neighborhoods.

Dover's Community Development Block Grant program has successfully rehabilitated what was formerly the most deteriorated housing in the sub-area. Today, there is still physical deterioration on scattered sites on the fringe of downtown. It is recommended that the Community Development Block Grant program focus on those scattered units with an ongoing rehabilitation loan and grant effort. In doing so, it is recommended that the city's Community Development Block Grant program be encouraged to pursue rehabilitation activities aggressively.

Sub Area 6: Cocheco Waterfront

This sub-area embraces the existing sewerage treatment plant and public works sites along with adjacent lands overlooking the Cocheco River. This sub-area's development opportunities are substantial and very important to the future economic development of the city. Our recommendations with respect to this sub-area have been discussed in the previous section of this analysis.

ADDENDUM A

RIST-FROST PHYSICAL ANALYSIS

DRAFT

City of Dover Site Investigations Study Areas 1, 2 and 3

I. Introduction

This analysis investigates three specific sites to determine suitability for future development using four separate criteria; 1. Soils; 2. Topography; 3. Water and Sewer; and 4. Transportation. The proposed type of developments are depicted on each site plan along with soils ranked in a three-tier preference. In addition, contours from USGS mapping are shown as well as existing water and sewer infrastructure and primary roads serving each site in question.

Soils 1.1

Table 1 presents the types of soils, along with associated slopes, found at each site under review. Table 2, in alphabetical order, ranks the various soils in a three-tier system. It must be stressed that Group 3 or the least acceptable does not preclude development. Based on the two criteria used to indicate ranking, the least acceptable soils were given this designation primarily due to either the potential for bedrock close to or at the surface, or the potential for a high water table. From an engineering standpoint neither of these factors present unsurmountable obstacles to development.

Table 1
 City of Dover Site Investigations
 Soil Types and Slopes

| <u>Soil Type</u> | <u>SITE 1</u> | | | | |
|------------------|----------------|----------------|-----------------|------------------|------------------|
| | <u>A(0-3%)</u> | <u>B(0-8%)</u> | <u>C(8-15%)</u> | <u>D(15-25%)</u> | <u>E(25-60%)</u> |
| Bz | * | * | | | |
| Cf | | * | | | |
| Ea | | * | | | |
| Gs | | | * | | |
| Hc | | * | | | |
| Sc | | * | | | |
| Sf | | | * | | |
| <u>SITE 2</u> | | | | | |
| Ad | | | * | | |
| Be | | * | | | |
| Cf | | * | | | |
| Ea | * | * | | | |
| Hc | | * | * | | |
| Lc | | * | | | |
| Sb | | | | | |
| Sc | * | | | | |
| Sn | | * | | | |
| <u>SITE 3</u> | | | | | |
| Bz | * | * | | | |
| Be | | | | | |
| Ea | * | | | | |
| Ha | | | * | | |
| Hc | | * | | | |
| Hg | | * | | * | |
| Sc | * | * | | | |
| Sf | | | * | | |
| Sw | | * | | | |
| Ta | | | * | | |
| Wd | | | | | * |

Table 2
City of Dover Site Investigating

Soil Suitability Ranking

| <u>Soil Type</u> | <u>Homesite Foundation (3 stories or less)</u> | <u>Streets and Parking Lots (Paved)</u> | <u>Development Ranking</u> |
|------------------|--|---|--------------------------------|
| Biddeford (Be) | Severe | Severe | 3 |
| Buxton (Bz) | Moderate | Severe | 2 |
| Charlton (Cf) | Slight | Moderate | 1 |
| Elmwood (Ea) | Moderate | Severe | 2 |
| Gloucester (Gs) | Moderate | Moderate | 1 |
| Hinckley (Ha) | Moderate | Severe | 2 |
| Hollis (HC Hg) | Severe | Severe | 2 |
| Leicester (Lc) | Severe | Severe | 3 |
| Saugutuck (Sb) | Severe | Severe | 3 |
| Scantic (Sc) | Severe | Severe | 3 |
| Tidal Marsh (Ta) | Severe | Severe | 3 |
| Windsor (WdE) | Severe | Severe | 3 |

- 1 = most acceptable
- 2 = acceptable
- 3 = least acceptable

Topography 1.2

Generally all three sites under review provide adequate topographic features. In general, slopes on Site 1 are relatively mild with elevations ranging from a high of 200' to a low approximately 150'. Slopes are generally mild with a slight slope to Indian Brook which runs north-northeasterly from Sixth Street towards the middle of the site.

Generally slopes across a majority of the site are in the range of 3% to 8% or less based in the USSCS soil survey.

Overall, a little limitation is presented by topography, however, the existing stream must be considered when planning future development.

Site 2 is slightly more sloped than Site 1. However, slopes are generally in a range of 3% to 8% or less, and elevations range from a high of approximately 190' in the northern portion to a low of approximately 120' in the area of Littleworth Road at Kelly Brook.

Kelly Brook and Knox Marsh Brook both flow southerly through the site in the southern portion of the site presenting potential access and drainage considerations.

The general slope of the land is to the east, except in the areas immediately adjacent to the two brooks.

Relatively little limitation to development is presented by the topography in this area.

Site 3 being at the eastern most portion of the City has the lowest elevations of the three sites under review ranging from Bellamy River elevation to a high approximately 100' along Piscataqua Road. Generally terrain rises up and away from the Bellamy River in a west-southwesterly direction. It is worth noting that small pockets of Hollis and Windsor soils are present at this site with slopes ranging from 15% to 60%.

Topography 1.2

Generally all three sites under review provide adequate topographic features. In general, slopes on Site 1 are relatively mild with elevations ranging from a high of 200' to a low approximately 150'. Slopes are generally mild with a slight slope to Indian Brook which runs north-northeasterly from Sixth Street towards the middle of the site.

Generally slopes across a majority of the site are in the range of 3% to 8% or less based in the USSCS soil survey.

Overall, a little limitation is presented by topography, however, the existing stream must be considered when planning future development.

Site 2 is slightly more sloped than Site 1. However, slopes are generally in a range of 3% to 8% or less, and elevations range from a high of approximately 190' in the northern portion to a low of approximately 120' in the area of Littleworth Road at Kelly Brook.

Kelly Brook and Knox Marsh Brook both flow southerly through the site in the southern portion of the site presenting potential access and drainage considerations.

The general slope of the land is to the east, except in the areas immediately adjacent to the two brooks.

Relatively little limitation to development is presented by the topography in this area.

Site 3 being at the eastern most portion of the City has the lowest elevations of the three sites under review ranging from Bellamy River elevation to a high approximately 100' along Piscataqua Road. Generally terrain rises up and away from the Bellamy River in a west-southwesterly direction. It is worth noting that small pockets of Hollis and Windsor soils are present at this site with slopes ranging from 15% to 60%.

From the demand identified above, the following represents the pipe size that would be needed to service each site under review for the type of uses contemplated.

Site 1

| <u>Total GPD</u> | <u>Peaking Factor</u> | <u>Peak GPM</u> | = | |
|------------------|-----------------------|-----------------|---|----------------------------|
| 294,400 | 6 | 1,226 | | 10" water 10"-12" sewer |

Site 2

| <u>Total GPD</u> | <u>Peaking Factor</u> | <u>Peak GPM</u> | = | |
|------------------|-----------------------|-----------------|---|----------------------------|
| 412,000 | 6 | 1,716 | | 12" water 14"-16" sewer |

Site 3

| <u>Total GPD</u> | <u>Peaking Factor</u> | <u>Peak GPM</u> | = | |
|------------------|-----------------------|-----------------|---|----------------------|
| 45,000 | 6 | 188 | | 6" water 8" sewer |

1.4 Transportation

Of the three sites under investigation, Site 1 would appear to have the best highway access. It is bounded to the north by the Spaulding Turnpike and to the east by the Sixth Street connector which would provide direct access to the Spaulding Turnpike. In conversations with New Hampshire highway personnel, one point of access is allowed from Site 1 to the connector, otherwise points-of-access would come from Sixth Street.

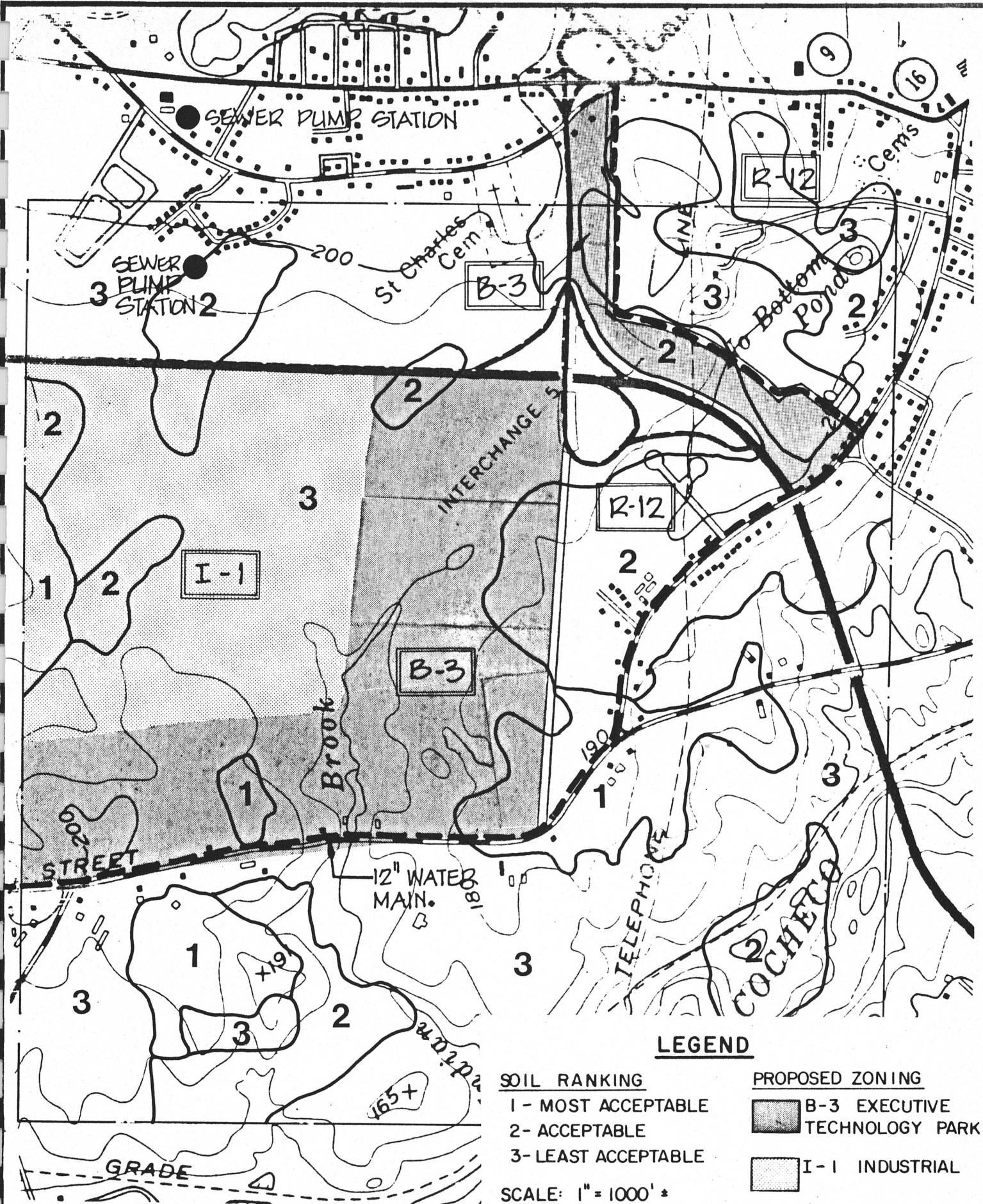
Site 2 does not have the same direct connection with the Spaulding Turnpike, nonetheless, it is bisected by Columbus Avenue which connects with Littleworth Road to the south and Tolend Road to the north.

Unquestionably, traffic concerns would be of utmost importance to residential development at Site 3. Piscataqua Road would likely be the main thoroughfare to this site but other roads abutting this site including Bay View, Rabbit and Tuttle would have to be upgraded along with hre internal circulation roads within the site.



Of primary importance to any future development proposals is the status of an East-West connector which will likely terminate at some point on the Spaulding Turnpike north of exit 9. As part of the State's 10-year plan, a \$1-million study will be undertaken to determine the perferred corridor. Until that study is complete and a firm course of action is in place, other major highway projects including elimination of the Week's traffic circle have been placed on hold. The following represents the current highway improvement projects anticipated on Dover over the next ten years.

City of Dover
State Highway Ten-Year Plan

1. 1995 Reconstruct crossing and modernize signals and roadway approach. B&M Railroad crossing on _____ Road.
2. 1990 Spaulding Turnpike: Improve and expand toll plaza to 8 lanes
3. 1993 Spaulding Turnpike: Safety improvements - 16.4 miles
4. 1987 Spaulding Turnpike: Environmental landscaping
5. 1973 Concord to Spaulding Turnpike: Long-range study



LEGEND

- | | |
|----------------------|---|
| SOIL RANKING | PROPOSED ZONING |
| 1 - MOST ACCEPTABLE |  B-3 EXECUTIVE TECHNOLOGY PARK |
| 2 - ACCEPTABLE |  I-1 INDUSTRIAL |
| 3 - LEAST ACCEPTABLE | |
| SCALE: 1" = 1000' ± | |



**CITY OF DOVER
LAND USE PLAN
SITE I**

LEGEND

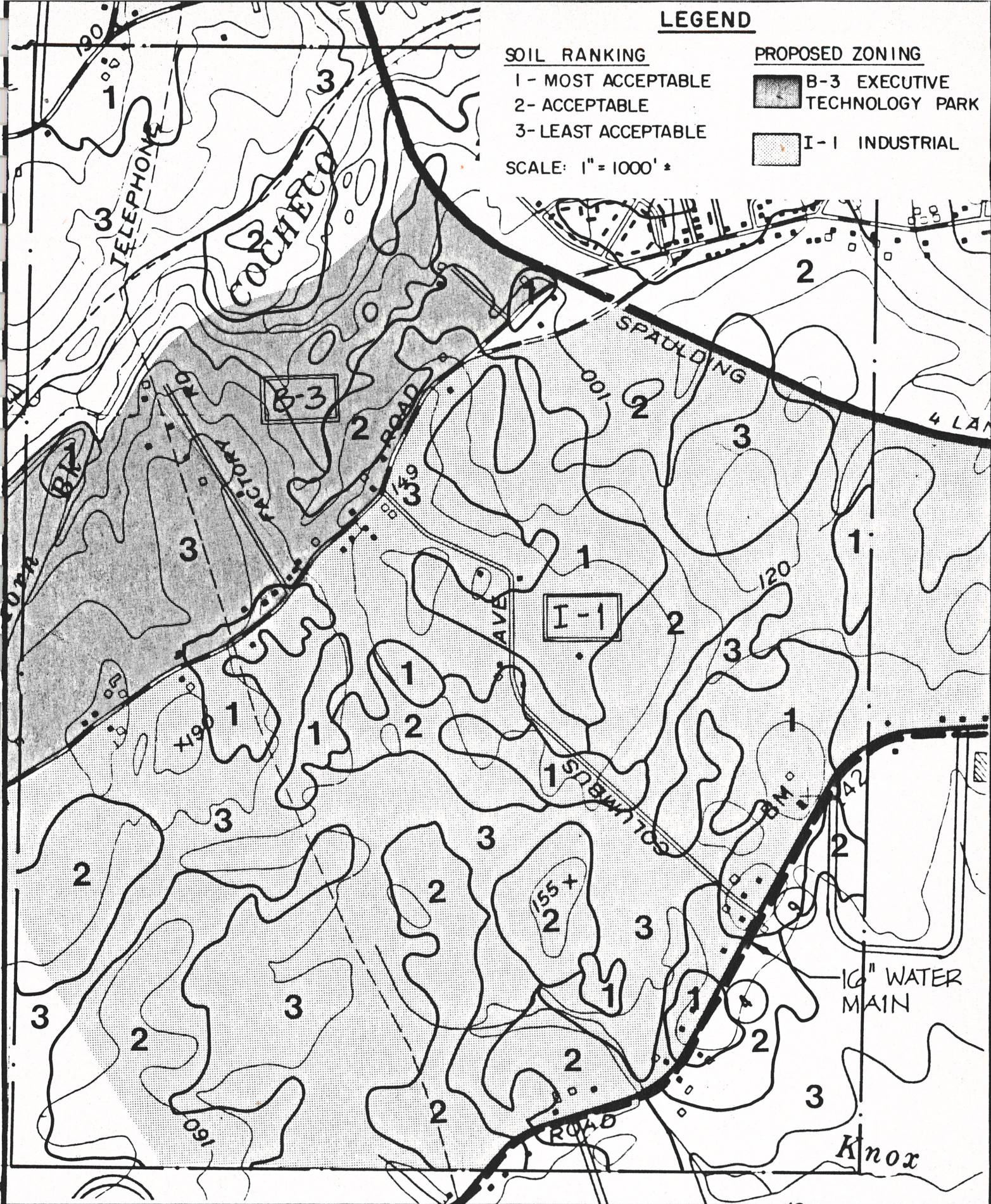
SOIL RANKING

- 1 - MOST ACCEPTABLE
- 2 - ACCEPTABLE
- 3 - LEAST ACCEPTABLE

PROPOSED ZONING

-  B-3 EXECUTIVE TECHNOLOGY PARK
-  I-1 INDUSTRIAL

SCALE: 1" = 1000' ±



CITY OF DOVER
LAND USE PLAN


SITE 2

LEGEND

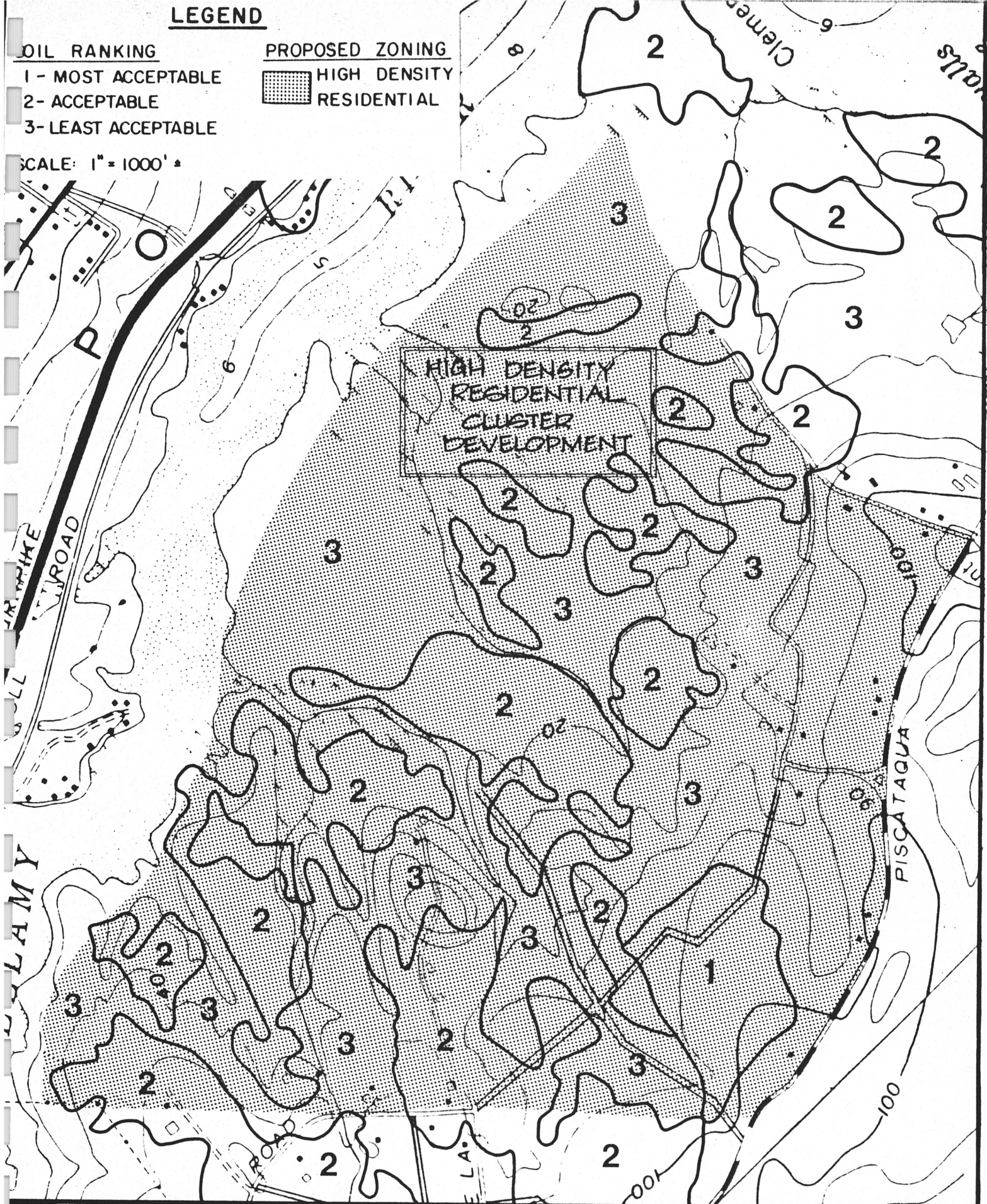
OIL RANKING

- 1 - MOST ACCEPTABLE
- 2 - ACCEPTABLE
- 3 - LEAST ACCEPTABLE

PROPOSED ZONING

-  HIGH DENSITY RESIDENTIAL

SCALE: 1" = 1000' *



CITY OF DOVER
LAND USE PLAN
SITE 3