CITY OF DOVER

PLANNING BOARD - AGENDA

Meeting Type: Regular Meeting
Meeting Location: Council Chambers - 288 Central Avenue, Dover, NH 03820
Meeting Date: **Tuesday, October 14, 2008**
Meeting Time: **7:00pm**

1. **CITIZENS' FORUM**

2. **APPROVAL OF MINUTES**

3. **NEW BUSINESS**

   A. Consideration and acceptance of a minor lot line adjustment of land for Charles & Sheila Kageleiry (Owners: Richard & Joan Vanlandingham), Assessor's Map M, Lots 74B, 76-10 & 76-11, zoned R-40, located on Waterloo Circle. * (P08-37)

   B. Public hearing and possible vote regarding proposed Fire, Police, and Recreation Impact Fees, and updated Public School Impact Fees. NH RSA 674:21-I authorizes impact fees to be collected to pay for the impacts to Capital Facilities caused by development. The details of the impact fees are outlined in three reports prepared for the Planning Board, which are available for public inspection in the Planning Department and on the City's website at www.ci.dover.nh.us.

4. **OLD BUSINESS**

   A. Consideration on a major subdivision of land and conditional use permit for KPRP, 165 Henry Law Ave, LLC, Assessor's Map 21, Lot 5, zoned R-12, located at 165 Henry Law Avenue. (P08-25) (9 lots)

   B. Planning Board Work Groups.

5. **STAFF COMMENTS**

6. **COMMITTEE REPORTS**

7. **ADJOURN**

* Indicates that if the application is accepted for discussion, the public hearing will be held the same evening, at which time any interested party may offer comment to the Planning Board. Persons with questions or wishing to see the plans are invited to visit the Planning Office. Plans and applications are available for inspection in the Planning Office, weekdays from 8:00 am to 4:00 pm.

Amount Paid 430.16 Date Received

File Number P08-37 Time Received 2:45

RECEIVED SEP 30 2008

CITY OF DOVER
MINOR LOT LINE ADJUSTMENT
APPLICATION

Name of Applicant: Charles P. & Sheila Kageleiry Phone # (603) 749-2800

& Owner: PO Box 186 Dover NH 03820

Signature of Applicant & Owner:

Land Owner's Name: *(if different from applicant)* Richard & Joan Vanlandingham

Land Owner' Address: 62 Waterloo Circle, Dover, NH 03820

Signature of Property Owner:

Square Footage of Original Lot Map M Lot 74B = 442,723 Map M Lot 76-10 = 114,772 sq. ft.

Map M Lot 76-11 = 143,661 sq. ft.

Square Footage of Newly Created Area: Map M Lot 74B = 524,424 sq. ft.

Map M Lot 76-10 = 176,790 sq. ft.

Location of Lot: Waterloo Circle

Zoning District R-40 Assessor's Map M Lot 74B, 76-10, 76-11

Professional Certification

Preparer of Plat: Tritech Engineering Corp. 755 Central Avenue Dover NH 03820

Phone #: (603) 742-8107 Profession: Engineering & Surveying

H/freeman/word/lists/minorlotapl.doc

Abutters List
Minor Lot Line Adjustment

Charles P. & Sheila Kageleiry
&
Richard E. & Joan Vanlandingham

Tax Map M, Lots 74B, 76-10 & 76-11
Waterloo Circle
Dover, New Hampshire
Job No. 08137

Abutters

Map M, Lot 58	Claire Viel 382 Middle Road Dover, NH 03820
Map M, Lot 74	Joseph A. Coulp 106 Dover Neck Road Dover, NH 03820
Map M, Lot 74A	Clayton B. & Maryann H. Wentworth 108 Dover Neck Road Dover, NH 03820
Map M, Lot 75 Map M, Lot 75A	Mark R. & Aimee M. Normandeau 94 Dover Neck Road Dover, NH 03820
Map M, Lot 76-9	Michael L. Beaudin Beth A. Beaudin 54 Waterloo Circle Dover, NH 03820
Map M, Lot 76-12	Brendan K. & Karen A. Chrisom 74 Waterloo Circle Dover, NH 03820
Map M, Lot 76-13	David Paolini 242 Central Avenue Dover, NH 03820
Map M, Lot 76-14	Bradford C. & Christine D. Stewart 86 Waterloo Circle Dover, NH 03820
Map M, Lot 76-22	Mark J. & Maureen C. Geppert 57 Waterloo Circle Dover, NH 03820
Map M, Lot 76-23	Robert C. & Lori Coleman 75 Waterloo Circle Dover, NH 03820

Abutters List
Minor Lot Line Adjustment

Charles P. & Sheila Kageleiry
&
Richard E. & Joan Vanlandingham

Tax Map M, Lots 74B, 76-10 & 76-11
Waterloo Circle
Dover, New Hampshire
Job No. 08137

Owner/Applicant

Map M, Lot 74B Map M, Lot 76-11 (50%)	Charles P. & Sheila Kageleiry PO Box 186 Dover, NH 03821
Map M, Lot 76-10 Map M, Lot 76-11 (50%)	Richard E. & Joan Vanlandingham 62 Waterloo Circle Dover, NH 03820

Agent

Tritech Engineering Corp.
755 Central Avenue
Dover, NH 03820

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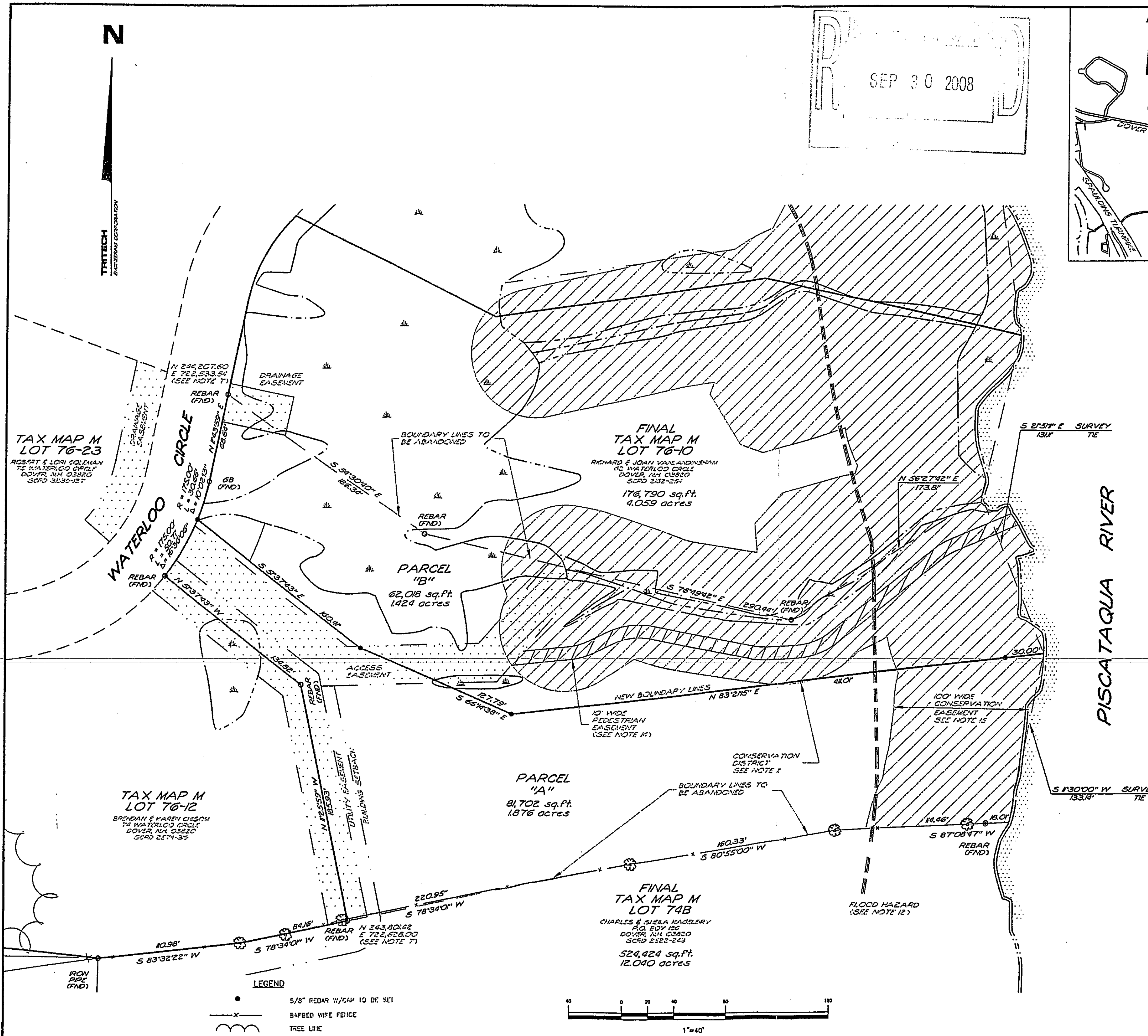
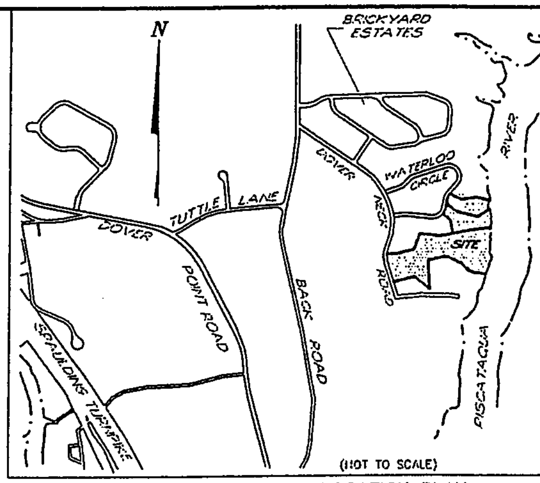




LOCATION PLAN

NOTES

1. INTENT: TO ADJUST THE PROPERTY LINES BETWEEN TAX MAP M LOT 74B AND MAP M LOT 76-10, BY DIVIDING MAP M LOT 76-11, PARCEL "A" (81,702 SQ.FT.) GOING TO MAP M LOT 74B AND PARCEL "B" (62,018 SQ.FT.) GOING TO MAP M LOT 76-10. THIS ELIMINATES MAP M LOT 76-11 COMPLETELY.

2. CURRENT OWNER: MAP M LOT 74B
CHARLES & SHEILA KAGELEIRY
P.O. BOX 186
DOVER, N.H.

MAP M LOT 76-10
RICHARD & JOAN VANLANDINGHAM
62 WATERLOO CIRCLE
DOVER, N.H.

MAP M LOT 76-11
CHARLES & SHEILA KAGELEIRY AND
RICHARD & JOAN VANLANDINGHAM
P.O. BOX 185
DOVER, N.H.

3. LOT AREA:

	MAP M LOT 74B	MAP M LOT 76-10
ORIGINAL	442,722 SQ.FT. - 10.164 ACRES	114,772 SQ.FT. - 2.635 ACRES
PARCEL "A"	+ 81,702 SQ.FT. - 1.876 ACRES	
PARCEL "B"		+ 62,018 SQ.FT. - 1.424 ACRES
FINAL	524,424 SQ.FT. - 12.040 ACRES	176,790 SQ.FT. - 4.059 ACRES

4. TAX MAP M LOTS 74B, 76-10 & 76-11

5. PROJECT DEED REFERENCE: MAP M LOT 74B
BOOK 2522 PAGE 243

MAP M LOT 76-10
BOOK 2162 PAGE 254

MAP M LOT 76-11
BOOK 3679 PAGE 335

6. ZONING: R-40
MIN. LOT SIZE: 30,000 SQ.FT.
MIN. FRONTAGE: 150 FT
MIN. SETBACKS:
FRONT: 50 FT
SIDE: 25 FT
REAR: 15 FT

7. BASIS OF BEARING: DOVER GIS SYSTEM.

8. PROJECT PLAN REFERENCE:

BOUNDARY LINE ADJUSTMENT
CHARLES P. & SHEILA KAGELEIRY
AND MARC & AIMEE NORMANDEAU
DOVER NECK ROAD
DOVER, NEW HAMPSHIRE
TRITECH ENGINEERING CORPORATION
JUNE 16, 2004 SCRD 75-80

SUBDIVISION PLAN
CAPTAIN'S LANDING
DOVER NECK ROAD
DOVER, NEW HAMPSHIRE
TRITECH ENGINEERING CORPORATION
JULY 2, 1938 SCRD 55-62

FINAL PLAN
BRICKYARD ESTATES
MIDDLE ROAD
DOVER, N.H.
G.L. DAVIS & ASSOCIATES
OCT. 1, 1985 SCRD 29-35

SUBDIVISION PLAN
ARNOLD C. RIGBY TRUST
REVOCABLE LIVING TRUST
DOVER NECK ROAD
DOVER, NEW HAMPSHIRE
TRITECH ENGINEERING CORP.
JULY 31, 1996 SCRD 48-51

MINOR SUBDIVISION OF LAND
PREPARED FOR
NATALIE M. HOWARD
DOVER NECK ROAD
DOVER, NEW HAMPSHIRE
McENEANEY SURVEY ASSOCIATES
JULY 20, 1994 SCRD 45-7

SUBDIVISION PLAN
RUTH C. RIGBY
DOVER, N.H.
FREDERICK E. DREW ASSOCIATES
SEPT., 1973

9. THE RAW UNADJUSTED CLOSURE OF OUR RANDOM POINT TRAVERSE WAS 1 PART IN 15,000, AND WAS ACCOMPLISHED USING A LIETZ SET3 TOTAL STATION, DURING THE MONTH OF DECEMBER, 1997.

10. ON OCTOBER 28 & 29, 1997 AND DECEMBER 29, 1997 LEONARD A. LORD, Ph.D., STATE OF NEW HAMPSHIRE CERTIFIED SOIL SCIENTIST #19, (CAREX ECOSYSTEM SCIENCES) CONDUCTED AN ON-SITE WETLANDS DELINEATION OF THE SUBJECT PARCEL. WETLANDS WERE IDENTIFIED BASED ON THE CITY OF DOVER ZONING ORDINANCE (170-27.1) AND ON STATE & FEDERAL CRITERIA OUTLINED IN THE "CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL" (DEPT. OF THE ARMY, 1987). ON THIS SITE, WETLANDS BASED ON LOCAL CRITERIA SHARE THE SAME BOUNDARIES WITH THOSE BASED ON STATE AND FEDERAL CRITERIA.

11. THIS PROPERTY FALLS WITHIN THE CONSERVATION DISTRICT, ZONING ORDINANCE 170-27. AREAS WITHIN 50' OF DEFINED STREAM CHANNELS, AREAS WITHIN 100' OF THE PISCATAQUA RIVER AND SLOPES IN EXCESS OF 20% ARE PART OF THE CONSERVATION DISTRICT AND THE REGULATIONS OF 170-27 APPLY. SLOPES ARE BASED ON ACTUAL FIELD TOPOGRAPHY. BOUNDARIES ARE APPROXIMATE.

12. FLOOD HAZARD BOUNDARY (ZONE A -100 YR). LOCATION SHOWN ON THIS PLAN IS SCALED FROM DOVER FIRM PANEL 330170 0340 D, DATED MAY 17, 2005. LOCATION IS APPROXIMATE.

13. HIGH WATER OBSERVED ON JANUARY 7, 1998. THIS BOUNDARY IS SUBJECT TO CHANGE DUE TO NATURAL CAUSES AND THIS MAY OR MAY NOT REPRESENT THE ACTUAL LOCATION OF THE LIMIT OF TITLE.

14. 10' WIDE PEDESTRIAN EASEMENT TO ACCESS BOAT DOCKS IF CONSTRUCTED.

15. MAP M LOTS 76-10 & 76-11 ARE SUBJECT TO A 100 FOOT WIDE CONSERVATION EASEMENT GRANTED TO THE CONSERVATION COMMISSION OF THE CITY OF DOVER.

TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER NEW HAMPSHIRE 03820
TELEPHONE 603 742 8107
FAX 603 742 3830

REVISIONS
DATE: DESCRIPTION:

BOUNDARY LINE ADJUSTMENT
CHARLES & SHEILA KAGELEIRY AND
RICHARD & JOAN VANLANDINGHAM
WATERLOO CIRCLE
DOVER, NEW HAMPSHIRE
SEPTEMBER 30, 2008 SCALE: 1" = 40' JOB No. 08137

SHEET NO. S-1

N

TRITECH
ENGINEERING CORPORATION

TRITECH
OCT - 8 2008
ISSUED

TAX MAP M
LOT 58

TAX MAP M
LOT 78A

RUTHIES RUN

TAX MAP M
LOT 90A-15

TAX MAP M
LOT 90D-3

TAX MAP M
LOT 90A-16

TAX MAP M
LOT 90D-4

TAX MAP M
LOT 90D-6

TAX MAP M
LOT 90D-7

TAX MAP M
LOT 90D-12

DOVER NECK ROAD

TAX MAP M
LOT 75

TAX MAP M
LOT 75A

MAP M
LOT 76-15

MAP M
LOT 76

MAP M
LOT 76-16

TAX MAP M
LOT 77

TAX MAP M
LOT 95A

TAX MAP M
LOT 73

TAX MAP M
LOT 74

MAP M
LOT 76-14

MAP M
LOT 76-25

MAP M
LOT 76-17

MAP M
LOT 76-1

TAX MAP M
LOT 90 A-17

MAP M
LOT 76-2

TAX MAP M
LOT 90 A-14

TAX MAP M
LOT 90U

WATERLOO CIRCLE

MAP M
LOT 76-13

MAP M
LOT 76-24

MAP M
LOT 76-18

MAP M
LOT 76-3

TAX MAP M
LOT 90 Q

MAP M
LOT 76-19

MAP M
LOT 76-4

TAX MAP M
LOT 90M

TAX MAP M
LOT 90 P

MAP M
LOT 76-23

MAP M
LOT 76-22

MAP M
LOT 76-20

MAP M
LOT 76-5

TAX MAP M
LOT 90L

TAX MAP M
LOT 95

TAX MAP M
LOT 74A

MAP M
LOT 76-12

TAX MAP M
LOT 90 A-7

MAP M
LOT 76-21

MAP M
LOT 76-6

CIRCLE

TAX MAP M
LOT 95B

FINAL
TAX MAP M
LOT 74B
CHARLES & SHEILA KAGELERY
P.O. BOX 33
DOVER, NH 03820
SCRD 2528-143
524,428 sq.ft.
12.040 acres

PARCEL
"A"
81,702 sq.ft.
1.876 acres

FINAL
TAX MAP M
LOT 76-10
RICHARD & JOAN VANLANDINGHAM
20 WATERLOO CIRCLE
DOVER, NH 03820
SCRD 3132-254
176,790 sq.ft.
4.059 acres

TAX MAP M
LOT 90I

TAX MAP M
LOT 90D

TAX MAP M
LOT 95D

TAX MAP M
LOT 74

MAP M
LOT 76-9

MAP M
LOT 76-8

MAP M
LOT 76-7

PARCEL
"B"
62,018 sq.ft.
1.424 acres

PISCATAQUA RIVER

100 0 50 100 200 400
1"=100'

TRITECH
ENGINEERING CORPORATION
755 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE 03820
TELEPHONE 603 749 9107
FAX 603 742 3560

REVISIONS
DATE: DESCRIPTION:

OVERALL PLAN
CHARLES & SHEILA KAGELERY AND
RICHARD & JOAN VANLANDINGHAM
WATERLOO CIRCLE
DOVER, NEW HAMPSHIRE
SEPTEMBER 30, 2008 JOB No. 08137
SCALE: 1" = 100'

SHEET NO.
S-2

IMPACT FEES FOR PUBLIC SAFETY FACILITIES

City of Dover, New Hampshire

2nd Draft: September 18, 2008

Prepared for:

Department of Planning and Community Development
City of Dover
288 Central Avenue
Dover, New Hampshire 03820

Prepared by:

Bruce C. Mayberry, Planning Consultant
49 Pineland Drive – Suite 202B - New Gloucester, Maine 04260
(207) 688-8433 - email: bcmplanning@securespeed.us

PUBLIC SAFETY IMPACT FEES: EXECUTIVE SUMMARY

This report provides a basis for the assessment of public safety impact fees in Dover, New Hampshire. The process of assessment is governed by the City's impact fee ordinance; the amount of an impact fee assessment may be determined by methods adopted by the Planning Board that document the proportional basis for the fees. Local impact fee ordinances and related assessment are authorized by New Hampshire RSA 674:21, V.

Impact fees are one-time charges to new development that are designed to offset the proportional impact of new development on the local public cost to provide public capital facilities. Since non-residential development places significant demands on public safety services, the impact fee schedule includes both residential and non residential uses. Two possible schedules of impact fees for public safety facilities are summarized below. The fees are shown per dwelling unit for residential uses and per square foot for commercial, industrial and institutional uses. The higher fee schedule (A) includes an allowance for fire department apparatus and capital equipment; a reduced fee schedule (B) includes only the public safety buildings of the Police and Fire Departments in the capital basis of the fee.

Assessment Schedule A

PUBLIC SAFETY IMPACT FEE ASSESSMENT SCHEDULE INCLUDING VALUE OF FIRE APPARATUS & CAPITAL EQUIPMENT			
Use Category	**Public Safety Impact Fees Per Dwelling Unit**		
General Residential Uses	Police	Fire	**Total Public Safety**
Single Detached	$276	$530	**$806**
Townhouse	$276	$467	**$743**
Two to Three Family	$418	$418	**$836**
Apartments 4+ Units	$407	$377	**$784**
Manufactured Housing	$166	$597	**$764**
Other Uses Based on Assessment Per Square Foot	**Public Safety Impact Fees Per Square Foot**		
	Police	Fire	**Total Public Safety**
Retail, Including Restaurants, Clubs	$0.37	$0.37	**$0.74**
Offices and Commercial Services	$0.14	$0.12	**$0.26**
Industrial, Transp, Whse, Communications	$0.08	$0.05	**$0.13**
Nursing Homes & Assisted Living	$0.00	$0.60	**$0.60**
Other Institutional Uses	$0.33	$0.31	**$0.64**
Average Non-Residential or Other	$0.26	$0.23	**$0.49**

Assessment Schedule B

PUBLIC SAFETY IMPACT FEE ASSESSMENT SCHEDULE - POLICE AND FIRE STATION BUILDINGS ONLY			
Use Category	**Public Safety Impact Fees Per Dwelling Unit**		
General Residential Uses	Police	Fire	**Total Public Safety**
Single Detached	$276	$231	**$507**
Townhouse	$276	$220	**$496**
Two to Three Family	$418	$204	**$622**
Apartments 4+ Units	$407	$188	**$595**
Manufactured Housing	$166	$313	**$479**
Other Uses Based on Assessment Per Square Foot	**Public Safety Impact Fees Per Square Foot**		
	Police	Fire	**Total Public Safety**
Retail, Including Restaurants, Clubs	$0.37	$0.19	**$0.56**
Offices and Commercial Services	$0.14	$0.07	**$0.21**
Industrial, Transp, Whse, Communications	$0.08	$0.02	**$0.10**
Nursing Homes & Assisted Living	$0.00	$0.32	**$0.32**
Other Institutional Uses	$0.33	$0.14	**$0.47**
Average Non-Residential	$0.26	$0.11	**$0.37**

The above impact fee assessments should be updated periodically by reviewing and modifying the assumptions of the impact fee calculation within this report. Among the variables that may be changed include the estimated capacity, scale and cost of capital facilities to be provided, their projected service population, and proportional demand on facilities from various land use sectors. The focus of such adjustments should be to create a fee that is proportional to the cost of providing capacity in capital facilities at the time that new development takes place.

The City may adopt separate fee schedules for each department, or assess a single impact fee for "public safety facilities". In most cases, public safety fees are segregated into separate accounts for each department in the event that progress toward planned improvements differs between the two departments.

A. INTRODUCTION

1. Purpose of Report

The purpose of this report is to establish a proportional method of calculation for impact fees to be assessed to new development for public safety facilities provided by the City of Dover.

2. Authority for Assessment and Limitations

Impact fees in Dover may be assessed under the provisions of section 170-28.7 of the Dover Code. This authority delegates to the Planning Board the ability to adopt, amend and update methods and calculations for impact fee assessments. The City's ordinance provisions are authorized under New Hampshire RSA 674:21, V.

There are some important limitations imposed by the relevant authorizing statute (New Hampshire RSA 674:21, V.) These include: (1) the cost of upgrades to existing infrastructure cannot be paid for with impact fees (except as required to serve new development); (2) impact fees must be refunded if the City does not appropriate necessary non-impact fee funds for related capital facilities within six years of collection of the fee; and (3) impact fees may not accrue to the general fund.

Impact fees may be assessed either in anticipation of capital projects that will serve new development, or to recoup past capital investments made in anticipation of the needs to be generated by new development. Impact fees are best used where reserve capacity already exists in particular capital facility categories, or where an appropriation of funds to create capacity to serve new development is expected to take place within six years of the collection of the fee.

3. Proportionality Measures

Both the Dover impact fee ordinance and New Hampshire RSA 674:21, V require that impact fees be proportional to the demand on capital facilities reasonably associated with new development. It is not necessary to demonstrate a direct link between actual usage of a particular capital facility by each individual development that is assessed an impact fee. In this report, the proportionality of an impact fee assessment is based on generalized estimates of the relative expected demand of various classes of property on services and related facilities, expressed on a per-dwelling unit basis for residential development and on a per-square-foot basis for non-residential development.

The impacts of new development on public schools, recreation facilities, and libraries are typically associated with the demands of residential development. In the case of other facilities such as water or sewer utilities, roads and public safety facilities, both commercial and residential developments contribute to service demands and therefore to capital facility needs.

In the field of public utilities (water, and sewer systems) direct demand on facility capacity is relatively easy to measure based on actual consumption and metered usage. But for facilities that provide services on "at-large basis", measures of demand are often indirect. For example,

for public safety services, where data are available, calls for service by land use sector may be considered in developing a basis for proportional impact assessment. Measures of proportionality of service demand from commercial versus residential sectors may also include gross assessed value by property class, floor area of development, or other measures.

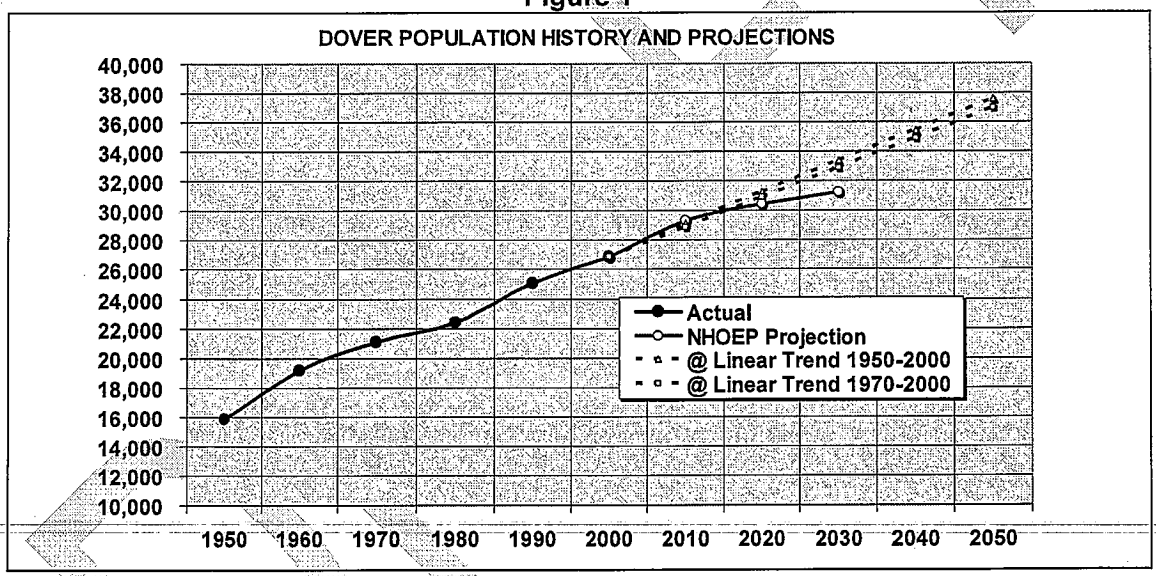
B. RESIDENTIAL VS. NON-RESIDENTIAL DEVELOPMENT

1. Residential Demand

a. Population Trend and Projections

For residential development, the demands of growth are often measured in terms of population and/or housing units. Figure 1 illustrates historic trends and alternative projections of Dover's population. Data from the Census years 1950 through 2000 are actual counts, while mathematical projections are shown for the intervening years.

Figure 1



The most recent population projection by the NH Office of Energy and Planning (NHOEP) forecasts a 2030 population of 31,250. The projections based on long term linear trends in Dover yield a 2030 projection of about 33,000. The linear projections, when extrapolated further, suggest future population of about 35,000 by 2040 and 37,000 by 2050. These projections, however, do not necessarily reflect the constraints of land availability or zoning that could limit future housing production and resident population growth.

b. Buildout Estimates from the Master Plan

In its 2007 update to the Land Use chapter of the City Master Plan, the City Planning Department has estimated that, based on estimates of developable land by zoning district, a potential for an additional 3,155 residential units (under current allowable densities).

According to NHOEP the City had 13,095 total dwelling units as of 2006. The total number of occupied units (households) as of 2006 was estimated at 12,584. The NHOEP estimates of population for 2006 showed a total population of 28,703. With a subtotal of 947 in group quarters and 27,756 persons in households estimated in 2006, average household size in Dover is estimated at 2.21 in 2006 to the 2000 total would bring estimated buildout units to about 16,250. Assuming a 97% occupancy rate and constant household size at 2.21 would equal a future buildout population estimate of about 34,500. If household size continues to decline, however, say to 2.10 by the buildout year, total population could be lower at about 32,760.

The buildout study also indicated availability of over 1,100 acres of developable land in the commercial, industrial and mixed use zones:

Commercial/Retail Districts	301 developable acres
Industrial Zoning Districts	629
Mixed Use Zoning Districts	87
Total	1,117

If we assume a conservative ratio of a 20% floor area ratio to developable land in these districts, the supportable growth in commercial/industrial floor area of 9.7 million square feet. If fully developed at this ratio, the gross leasable area of developed non-residential property would double.

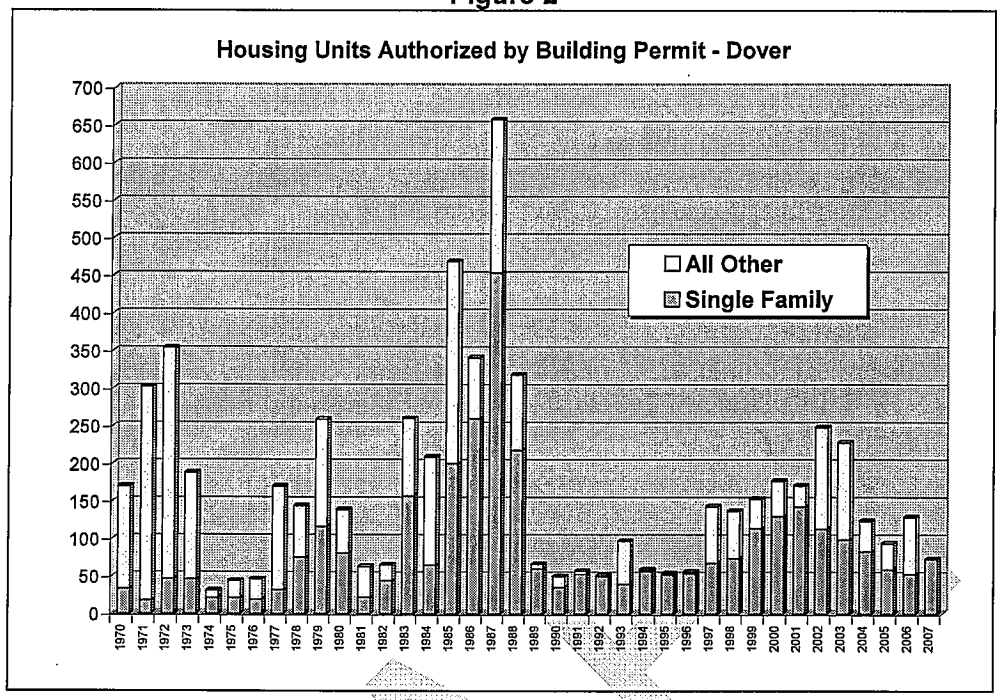
c. Housing Units Authorized by Permit

Table 1 and Figure 2 illustrate the history of residential development based on building permits issued in the City of Dover from 1970 through 2007. The long-term average for this entire period is approximately 170 residential units per year; for the period 2000-2007 the average has been 156 units per year. If an average growth of 150 units per year were maintained, buildout (as estimated in the Master Plan's Land Use Update) could be reached around the year 2028. The population affects of this housing growth could be higher if single family homes dominate new construction (single family homes have larger average household size).

Table 1

Total Housing Units Authorized				
Period	Single Family	2+ Family	Manufactured	All Types
1970s	428	1,191	89	1,708
1980s	1,561	941	86	2,588
1990s	597	212	48	857
2000-2007	753	458	33	1,244
Average Annual Units Authorized				
Period	Single Family	2+ Family	Manufactured	All Types
1970s	43	119	9	171
1980s	156	94	9	259
1990s	60	21	5	86
2000-2007	94	57	4	156

Figure 2



One of the advantages of impact fee assessments is that of capturing revenue in proportion to the amount of new development that actually occurs. Therefore in a slow development period such as the early 1990s, impact fee revenues would be comparatively low, but if a strong growth cycle occurs, such as that of them 1980s, impact fee revenues would rise.

4. Nonresidential Demand

Measurements of the demand on services and capital facilities from the nonresidential sector may rely on indicators such as employment growth or the amount of floor area in nonresidential development in the community.

a. Employment (Jobs in Dover)

Figure 3 illustrates the number of private sector covered employment[1] (jobs located in Dover) and the employment growth trend from 1980 through 2006 based on New Hampshire Employment Security data. Two linear projections are illustrated for the period 2006 to 2030 for private covered employment. The first is based on the long-term linear trend from 1980 to 2006 and the second is based on a shorter term linear trend using base years from 1990 to 2006.

As of 2006, private sector covered employment in Dover was 14,373. The alternative trendlines in Figure 3 suggest that private sector employment in Dover could be between 17,000 and 19,400 in the year 2030. The ultimate number of jobs located within the City of Dover is

[1] Refers to jobs "covered" by unemployment compensation insurance, as reported by NH Employment Security, Labor Market Information Services. Covered employment excludes fully commissioned sales persons and the self employed.

also dependent on factors such as zoning, land availability for commercial development, allowable building height, coverage ratios and other factors.

Figure 3

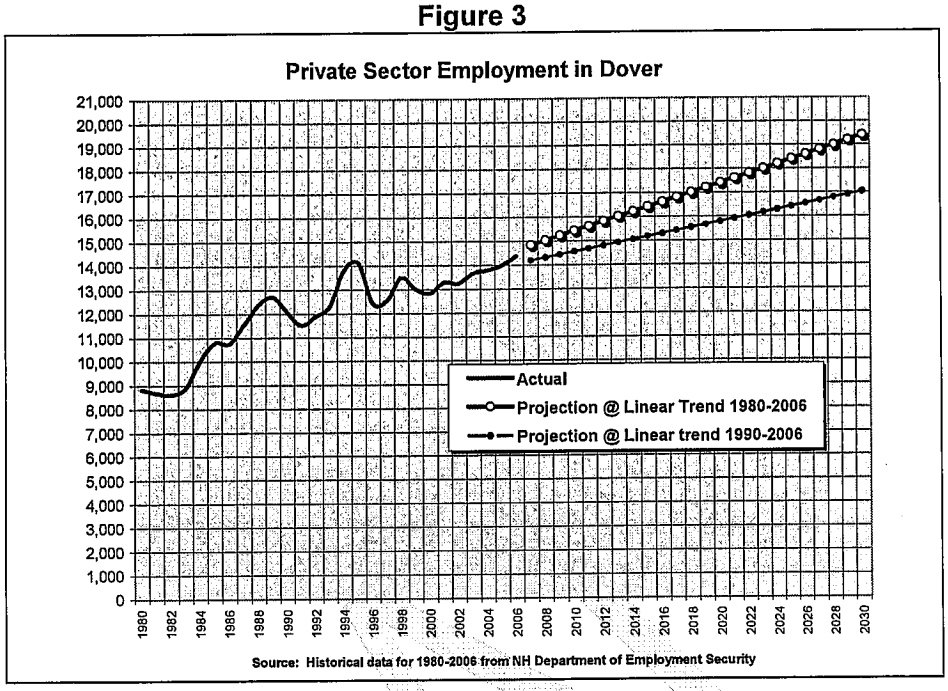
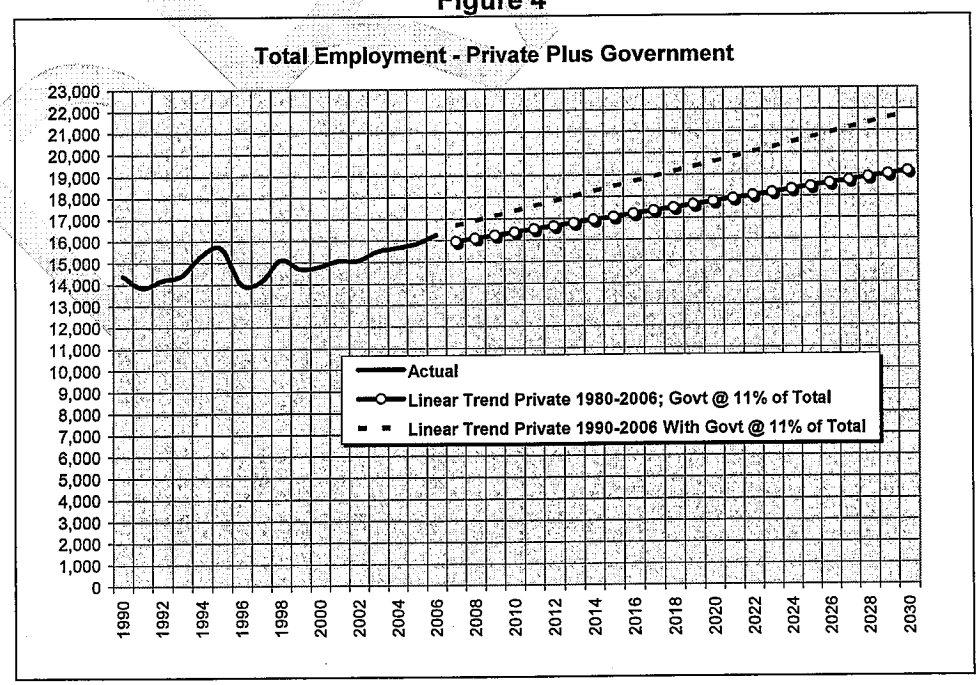


Figure 4 below provides a long-term projection of total employment, including government, that follows the higher growth trend based on long term changes from 1980-2006. Under this scenario, total employment in 2030 is projected at 21,800.

Figure 4



b. Floor Area of Non-Residential Buildings

The general mission of public safety services is the protection of persons and property. Therefore, measures such as population and employment as well as the built environment (expressed as square footage) may be used to estimate proportional demand ratios and relative impact fee assessments.

Table 2 below illustrates the estimated cumulative floor area (gross leasable area) of commercial, industrial, and institutional uses in Dover by year. This information was developed based on City assessment data and the actual year built assigned in the property records. The net average annual change in GLA per period is shown on the right side of the table. For long-term growth estimates, an average annual absorption of 120,000 square feet seems reasonable based on this information.

Table 2

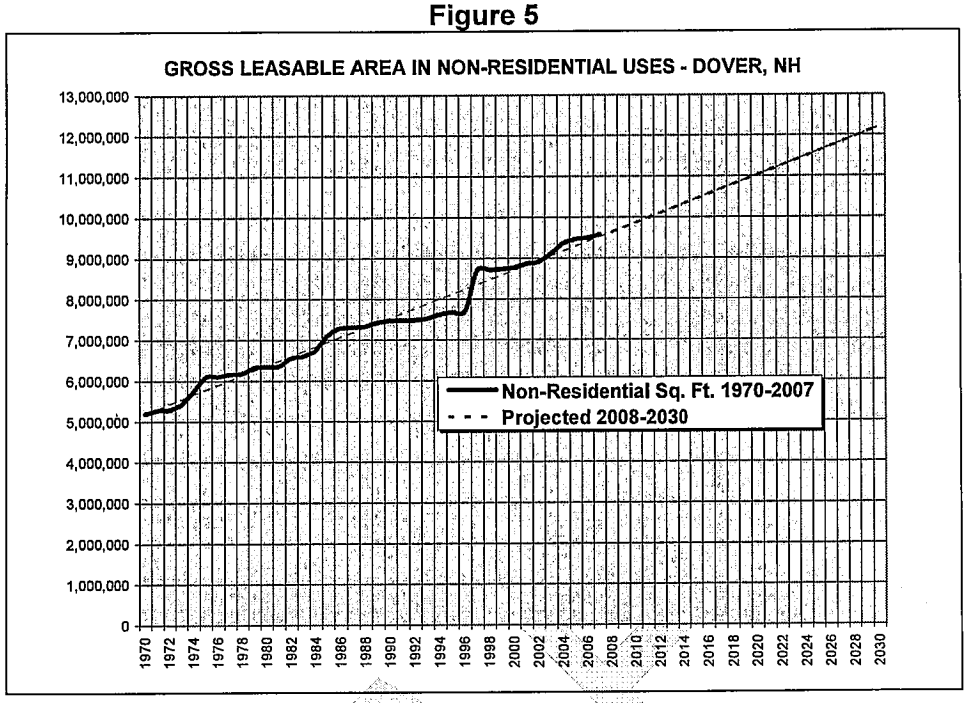
Year	Total Non-Residential Square Ft of GLA	Change From Prior Period	Average Annual
1960	4,205,065	n.c.	n.c.
1970	5,194,988	989,923	98,992
1980	6,351,893	1,156,905	115,691
1990	7,464,943	1,113,050	111,305
2000	8,766,105	1,301,162	130,116
2007	9,575,622	809,517	115,645

The average GLA per employee in Dover, based on the foregoing analysis is about 590 square feet per employee (including all uses). If average annual growth were 120,000 square feet of GLA per year between 2007 and 2030, and average floor area per employee remained constant, total employment would be just under 21,000 and non-residential floor area would total about 12.4 million square feet in 2030. (See Table 3 below). A linear trend analysis of floor area shows a similar projection in Figure 5 below.

Table 3

NON-RESIDENTIAL SECTOR 2030 @ AVERAGE GROWTH IN GLA PER YEAR			
Period	**Total GLA in Non-Res. Uses**	**Private & Govt Employment**	**GLA Per Employee**
2007 Estimate	9,600,000	16,300	589
Growth 2007-2030 @ 120,000 Sq. Ft. /Yr	2,760,000	4,686	589
Total in 2030	12,360,000	20,986	589

Figure 5



If the linear projection is extrapolated further, the projected GLA reaches 13 million square feet by the year 2037 and 14 million square feet by 2046. Based on the amount of developable land indicated in the City Master Plan land use update, the City may reach its current residential buildout horizon well before it reaches its potential for commercial-industrial development based on current zoning.

It should be noted that projections over this long term period reflect the history of the City only, and do not reflect potential shifts or relative future shares of regional economic development. In addition, such projections cannot anticipate changes in the zoning of developable land, which may take place in the future to effect a balance between residential uses and non-residential development and the desired jobs-housing linkage.

5. Growth Assumptions for Fee Calculations

For the purpose of establishing long-term growth assumptions for the Police and Fire & Rescue Department facilities, a horizon population of 35,000 persons has been assumed. This is the horizon used by the City's architectural consultants in the 2007 space needs study for the Police Department in Dover. Based on the above analysis, this population could represent a residential "buildout" population based on the City Planning Department's 2007 analysis of remaining developable land in residential zoning districts. Our earlier simple linear projections discussed in the population analysis above indicated that if past trends continue, this population could be reached by 2040. The separate linear projections of employment and gross leasable area in the non-residential sector indicate that by the same year, total non-residential floor area could total grow to about 13.6 million square feet of gross leasable area by that time. These residential and non-residential growth assumptions have been used in the impact fee calculations to estimate the proportionate share of facility demand that may be reasonably associated with new development.

C. ANALYSIS OF PUBLIC SAFETY CALL DATA

As part of this study the Consultant cross-tabulated property public safety calls for service (for 2005 and 2006) with assessment data. The call data by address were provided from dispatch records provided by the Dover Police Department, then associated with parcel identification numbers and type of use (provided by the City Planning Department). There were a total of 40,426 calls for service associated with the Police Department over the two-year period, and 9,492 associated with the Fire & Rescue Department (including emergency medical services).

The Consultant integrated the call for service records with assessment data by matching the number of calls for service assigned to a parcel identification number with its assessment information. In cases where the call data were recorded with a street name, but not a particular street number, the assigned parcel identifications were sometimes assigned to a nearby vacant lot, parking lot, or government-owned property. For these calls, the Consultant estimated the proportion assigned to residential vs. non-residential uses based on the zoning district associated with the general location of these calls.

Total calls for the reporting period (2 years 2005-2006) were annualized and a ratio of average annual calls per living unit (residential uses) and calls per 1000 square feet (non-residential uses) were computed. Table 4 summarizes the tabulation of call data by use grouping. One of the imperfections of the data file is that the number of condominium units appears to be far below the actual count in the City. Therefore, it is likely that some calls to condominium units have been assigned to multifamily apartment uses within the combined data base.

1. Proportionate Demand: Residential vs. Non-Residential

There are two principal products of this analysis. One result is the estimated proportionate demand on public safety services between residential and non-residential uses. The second product is a comparison of the annual calls per living unit or per square foot associated with various subcategories of development. This provides a basis for estimating the residential vs. non-residential shares of demand on public safety services, and allows for differentiation between uses that may have higher or lower public safety demands per unit of development.

Based on existing and projected calls for service, the estimated proportionate split between residential and non-residential demands on the two departments is:

Police Department:	50% residential / 50% non-residential
Fire & Rescue Department:	60% residential / 40% non-residential

These proportions were used to assign the capital costs of new development to the two major development sectors. These ratios were derived by applying the call rate per unit (residential) and per 1000 square feet (non-residential) to base year characteristics (2007) and to horizon year characteristics. The average of the existing and future ratios of residential/non-residential demands have been applied in allocating costs to the two sectors in the impact fee models.

Table 4

SUMMARY TABULATION OF DOVER PUBLIC SAFETY CALLS (2005-2006) BY LAND USE CLASSIFICATION

Residential	Calls for Service 2005-06		Number of Living Units	Annual Calls Per Living Unit	
	Police Dept	Fire Dept		Police Dept	Fire Dept
Single Family Home	7,911	2,609	6,075	0.65	0.21
Condominium	205	42	314	0.33	0.07
Duplex/Triplex	2,253	525	1,752	0.64	0.15
Multi-Family Apts 4+ Unit (Total)	7,780	2,409	5,024	0.77	0.24
Assisted Senior Housing Age 62+ (ST)	284	917	329	0.43	1.39
Assisted Family Housing	2,420	369	414	2.92	0.45
Other Market-Rate Multifamily	5,076	1,123	4,281	0.59	0.13
Manufactured Housing	294	201	518	0.28	0.19
Residential Total	**18,443**	**5,786**	**13,683**	**0.67**	**0.21**

Commercial-Industrial	Calls for Service 2005-06		Commercial Sq. Ft. (GLA)	Annual Calls Per 1000 Sq. Ft. GLA - Commercial	
	Police Dept	Fire Dept		Police Dept	Fire Dept
Retail	2,120	431	887,698	1.19	0.24
Retail With Apts Above	735	179	474,128	0.78	0.19
Restaurants & Clubs	1,513	289	178,466	4.24	0.81
Office	1,338	252	1,588,877	0.42	0.08
Commercial Service	1,849	319	706,847	1.31	0.23
Industrial, Transportation, Utility	2,452	355	3,302,316	0.37	0.05
Commercial/Industrial Total	**10,007**	**1,825**	**7,138,332**	**0.70**	**0.13**

Government, Institutional & Non-Profit	Calls for Service 2005-06		Other Uses - Sq. Ft. (GLA)	Annual Calls Per 1000 Sq. Ft. GLA - Other	
	Police Dept	Fire Dept		Police Dept	Fire Dept
Government	2,365	399	415,474	2.85	0.48
Public Recreation	548	93	81,375	3.37	0.57
Education	1,418	318	838,086	0.85	0.19
Assisted Living & Nursing Home	173	361	394,320	0.22	0.46
Hospital	519	122	262,953	0.99	0.23
Religious	699	112	243,927	1.43	0.23
Non-Profit Other	651	124	151,619	2.15	0.41
Total Gov't, Inst., Non-Profit	**6,373**	**1,529**	**2,387,754**	**1.33**	**0.32**
Total Excluding Government, Education, Public Rec	**2,042**	**719**	**1,890,905**	**0.54**	**0.19**

Other Calls - Vacant Land, Parking Lots, Other Assigned by General Land Use in Area	Calls for Service 2005-06	
	Police Dept	Fire Dept
Residential Areas	2,521	176
Commercial Areas	3,082	176
Total Other	**5,603**	**352**

	Average Annual Calls in Data Base 2005-06	
Total Calls in Data Base	**40,426**	**9,492**
	20,213	**4,746**

					Average Annual Call Rate	
Overall Calls by Sector	Police Dept	Fire Dept	Units/Sq. Ft.		Police Dept	Fire Dept
Overall Residential Sector Calls	**20,964**	**5,962**	**13,683**	Per Unit	**0.77**	**0.22**
Overall Non-Residential Sector Calls	**19,462**	**3,530**	**9,526,086**	Per 1000 Sq. Ft.	**1.02**	**0.19**

Share of Calls By Use Grouping	Police	Fire
Residential	51.9%	62.8%
Commercial-Industrial	32.4%	21.1%
Institutional, Religious, Oth.Non-Profit.	5.1%	7.6%
Government, Education, Public Rec.	10.7%	8.5%
Estimated Non-Residential Share	**48.1%**	**37.2%**

Sources: Calls for service by address provided by Dover PD from dispatch records; not all calls were recorded by street number. Street address associated with assessment parcel ID and use description by Dover Planning Department. Merging of assessment information with calls for service data and related tabulations by BCM Planning Consultant. Consultant added subcategories for multifamily housing, hospital, nursing homes and assisted living based on other inventories. (See report text for further description.)

2. Police Department Calls For Service

In general, the Police Department calls per living unit were somewhat higher than the average for multifamily apartments, especially for subsidized family housing. The call ratios were lower than the average unit for condominiums and manufactured housing.

In the non-residential sector (excluding public property) Police Department calls per 1000 square feet were highest for restaurants & clubs, retail and commercial service uses, and for religious and other institutional/non-profit uses. Demand was lower per 1000 square feet for office and industrial uses, assisted living and nursing homes.

3. Fire & Rescue Department Calls for Service

In the residential sector, higher call rates for Fire/EMS per unit were found among apartments for the elderly (probably owing to more frequent demand on ambulance services. Within the non-residential and institutional sectors, calls per 1000 square feet (excluding public uses) were highest for restaurants & clubs, assisted living and nursing homes, and miscellaneous non profit uses (not including religious uses and hospital).

4. Multipliers Based on Relative Call Frequency

Within the detailed model, multipliers were computed by land use groupings as a means to adjust the related impact fees from an average or "baseline" per living unit or per square foot to reflect relative demand of that use category on each department.

Table 5: Multipliers assigned in model

Multipliers Used in Impact Fee Model by Department (Relative Impact Per Unit or Per Sq. Ft.)		
Residential Uses	Police	Fire/EMS
Single Detached (Base)	1.00	1.00
Townhouse Condo	0.81	0.81
Two to Three Family	0.99	0.70
Apartments 4+ Units	0.91	0.61
Manufactured Housing	0.44	0.90
Non-Residential Uses	Police	Fire/EMS
Retail, Including Restaurants, Clubs	1.39	1.50
Offices and Commercial Services	0.68	0.81
Industrial, Transportation, Whse, Communic.	0.36	0.28
Nursing Homes & Assisted Living	0.21	2.35
Other Institutional Uses	1.39	1.40
Average Non-Residential (Base)	1.00	1.00

The relative call rates by land use are used later in the model to assign different impact fee amounts to various types of land use based on their relative call demand on the Fire & Rescue Department. For the purpose of impact fee assessment, five structural types were assigned for residential uses, and five for non-residential uses. In the case of townhouse/condominiums, due to the possibility of flawed data, proportionate impacts were assigned based on average household size in Dover (relative to single family homes) rather than based on the call multiplier method. The multipliers are intended to reflect the general relative impact of certain use categories on the demand for services, which in turn affects demands on personnel, equipment, and ultimately on building floor area for related capital facilities.

D. POLICE DEPARTMENT IMPACT FEE

1. Police Department Personnel Ratio

While commercial as well as residential development has an impact on law enforcement, service levels are most often measured by the number of officers or sworn personnel per 1,000 residents. As each community has its own unique demands for police services, there is no established uniform standard for all communities. However, average ratios can be assigned to existing and future development based on expected or actual ratios of personnel to resident population. The average personnel ratios per 1000 persons tend to be higher in larger cities and towns of higher density that function as commercial centers. Data for 2005 for New Hampshire cities and towns of 25,000 or more are shown in Table 6 below.

Table 6

POLICE DEPARTMENT STAFF RATIOS: NEW HAMPSHIRE 2005 For Municipalities with Population 25,000 +		
City or Town	**Total Staff Per 1000 Pop. In 2005**	**Sworn Officers Per 1000 Pop. In 2005**
Dover	**2.37**	**1.95**
Merrimack	1.88	1.39
Rochester	2.18	1.63
Derry	2.16	1.73
Concord	2.27	1.75
Nashua	2.47	1.84
Manchester	2.39	1.84
Averages for Communities With 25,000 Persons or More	**2.32**	**1.78**
Source Notes: *Computed by Bruce C. Mayberry, Planning Consultant using 2005 population estimates from NH Office of Energy and Planning, and municipal-level data on law enforcement personnel compiled by U.S. Dept of Justice/FBI for 2005.*		

There are presently 47 full time sworn officers in the Dover Police Department, which represents a ratio of approximately 1.64 sworn personnel per 1,000 residents (using NHOEP population estimates for 2007). This ratio is lower than the City's 2005 ratio (see Table 6 above) and lower than the average for other NH communities with populations of 25,000 or more persons. Full time staff including officers and civilian personnel in the Dover Police Department is presently 62 persons, representing an average of 2.16 full time personnel per 1000 residents.

For the purpose of impact fee assessment, the model will assume that the ratio of officers and full time staff to resident population will remain constant for the horizon year projections of the City's residential and non-residential service base.

2. Police Department Facility Space and Cost

The Dover Police Department headquarters is presently located on the ground floor of City Hall, with some functions housed off-site in other freestanding buildings (impound area, garage, storage facilities). The overall gross floor area occupied by the Police Department is 18,553 square feet of which 14,413 square feet is in City Hall. The study included evaluation of renovation and new construction options, with the recommendation to relocate the Police Department to a new site and renovate City Hall for general administrative uses. The gross development cost for a new Police Station was estimated at approximately $300 per square foot of floor area. Various future population estimates were considered in the analysis for the purpose of estimating future staff size and related building area recommendations While the year 2030 population projections of the NHOEP (31,250) were referenced, the study also discussed recent rates of growth and a potential need to accommodate a population of 35,000. For the purpose of impact fee assessment, it is assumed that the recommended facility would be capable of supporting adequate staffing for a population of up to 35,000 persons.

3. Proportionate Demand by Land Use and Existing vs. New Development

Based on the call for service data by land use category, it is estimated that residential uses account for approximately 52% of total demand on the department, and non-residential uses (commercial-industrial-institutional and government) about 48%. For the purpose of impact fee assessment, it is assumed that these proportions will remain the same in the future.

The proportion of the total investment in related capital facilities required in the base year (2007) vs. the proportion serving new development is estimated based on existing and future call volume. The call volume is projected in the model using the overall number of Police Department residential calls at the overall annual average of 0.77 per housing unit and non-residential calls at the rate of 1.02 per 1000 square feet of non-residential development.

4. Impact Fee Calculation for Police Department

The existing Police Department headquarters is undersized and some functions are located in separate buildings outside the City Hall location. Gross building area (all buildings) averages about 364 square feet per officer (and only about 280 square feet per officer within City Hall space). The recommended building is about 33,462 square feet. If staffing ratios per 1000 persons remains constant at a population of 35,000, the floor area of a new facility would provide 538 square feet per officer in the horizon year. When the average floor area need of 538 square feet per officer is applied to the current (2007) population, it indicates that existing gross floor area is deficient by about 8,900 square feet.

In order to define a service capacity and cost allocation basis for an expanded Police Department facility serving estimated long term needs, the following assumptions have been made:

a. The number of full time sworn personnel in the Police Department averages 1.64 per 1000 residents, and the number of total full time personnel averages 2.16 per 1000 persons. It is assumed that the ratio of sworn personnel to population will remain at or above this level in future years.
b. The floor area needs of the department may reasonably be defined by the ratio of planned facility space to the maximum number of sworn personnel needed at a

population of 35,000 persons, or about 584 square feet per officer (and 440 square feet per full time Police Department employee) in the model.

c. The gross development cost for a new Police Station is estimated as $300 per square feet as of 2008. This amount may be changed in future updates to reflect actual development costs upon completion of construction, or updated periodically based on a construction cost index.

d. About 50% of the demand on Police Department services will be generated by residential land uses (based on existing and projected calls for service) and 50% from non-residential uses.

The model in Table 7 incorporates projections of housing units, households, labor force and employment associated with a future service population of about 35,000. Because the existing space of the department is undersized relative to the City's current demand, much of the cost of a new police station is required to replace existing space and provide expansion sufficient to meet current needs. The portion of capital facility investment in the Police Department assigned to new development is approximately $2.5 million.

The capital cost attributed to new development is then allocated between new residential development and new non-residential development based on the projected growth in dwelling units and non-residential floor area. The costs attributable to new residential are then computed as a per capita amount while the costs attributable to non-residential uses are assigned per square foot of new non-residential floor area.

The resulting estimates indicate an average capital cost impact assignable to new development at $200 per capita for residential development and about $0.32 per square foot for nonresidential development. These are average costs prior to adjustment for various types of uses, or for allowances related to existing deficiencies.

For the residential sector, the per capita cost is multiplied by the estimated number of persons per occupied dwelling unit in a single family home to arrive at base per unit capital cost per housing unit. These costs are then adjusted relative to police department calls per dwelling unit for other types of structures. (The exception is that the rate for condominiums has been assigned based on household size).

In the nonresidential sector, similar multipliers are applied to groupings of non-residential uses so that those uses with higher or lower call rates per 1000 square feet are assigned higher or lower costs per square foot in relation to the City average for all non-residential uses.

A final adjustment is made to account for the property taxes to be paid by new development toward rectifying existing space deficiencies in the Police Department. The present value cost to construct new Police Department space to rectify the pre-existing space deficiency is estimated at $0.91 per $1000 valuation. Credit allowances for each use are then computed based on average assessed values per dwelling unit (residential uses) or per square foot (non-residential uses). The net amount after credit allowances is the amount to be assessed as an impact fee.

As the City grows, its assessed valuation will increase and the value attributable to rectifying space deficiency will decline. Construction costs for capital facilities will also increase. These factors will allow the impact fee to increase over time.

Table 7
Police Department Building Cost per Unit of New Development

POLICE DEPARTMENT IMPACT FEE - DOVER, NH - 2008			
Service Demand Factor	Base Year (2007 Est)	Supportable Service Base With Building Expansion @ Design Population of 35,000	Change from Base Year
RESIDENTIAL SECTOR			
Population (Residential Demand)			
Total Persons	28,703	35,000	6,297
Group Quarters Population	959	1,155	196
Household Population	27,744	33,845	6,101
Households (Occupied Units)	12,554	16,117	3,563
Average Household Size	2.21	2.10	-0.11
Total Housing Units @ 4% Overall Vacancy	13,077	16,788	3,711
NON-RESIDENTIAL SECTOR			
Employment (Total Including Government)	16,300	23,092	6,792
Non-Residential Floor Area Total	9,600,000	13,600,000	4,000,000
Non-Residential Uses: Floor Area Per Employee	589	589	
CALLS FOR SERVICE ESTIMATE			
Residential @ 0.8 Per Housing Unit	10,462	12,927	2,465
Non-Residential @ 1.0 per 1000 Sq. Ft.	9,600	13,872	4,272
Total Projected Annual	20,062	26,799	6,737
Police Department Staffing			
Full Time Sworn (Officers)	47	57	*Assumes constant staff ratio per 1000 population*
Full Time Staff including Officers	62	76	
Full Time Officers Per 1000 City Population	1.64	1.64	
Full Time Staff Per 1000 City Population	2.16	2.16	
Floor Area of Facilities	**Existing**	**With Future Expansion**	**Change from Base Year**
Floor Area of PD Buildings - (Gross Sq. Ft.)	18,553	33,462	14,909
Floor Area Per FT Officer	395	584	189
Floor Area Per FT Staff (Sq. Ft.)	299	440	141
Capacity of Building (Full Time Personnel)	42	76	34
Population Supported	19,508	35,000	15,492
Existing Floor Area Deficiency at Planned Std.	8,745		

	Demand on Capital Facilities		
Building Costs for Police Department HQ	Attributed to Existing Demand 2007	New Facility Total Cost	Portion Allocated to New Development
Facility Development Cost Per Sq. Ft. 2008	(Calls Basis)	$300	
Attributed Building Costs - Police Department	$7,517,550	$10,038,600	**$2,521,050**

Public Safety Demand By Sector - Police Department (Calls Basis)	Base Year	Future Year	Average
Residential Share of Demand	52%	48%	50%
Non-Residential Share of Demand	48%	52%	50%
Cost Attributable to New Residential Development			$1,260,525
Development			$1,260,525
Residential Cost Per Capita			$200
Non-Residential Cost Per Sq. Ft.			$0.32

PUBLIC SAFETY FACILTY COSTS PER UNIT OF NEW DEVELOPMENT - POLICE DEPARTMENT		
Residential Capital Cost Per Dwelling Unit	Residential PD Call Multiplier	Capital CostPer Unit
Single Detached	1.00	$540
Townhouse Condo	0.81	$437
Two to Three Family	0.99	$533
Apartments 4+ Units	0.91	$492
Manufactured Housing	0.44	$235
Non-Residential Capital Cost Per Square Foot	Non-Residential PD Call Multiplier	Capital Cost Per Sq. Ft.
Retail, Including Restaurants, Clubs	1.39	$0.44
Offices and Commercial Services	0.68	$0.22
Industrial, Transportation, Whse, Communic.	0.36	$0.12
Nursing Homes & Assisted Living	0.21	$0.07
Other Institutional Uses	1.39	$0.44
Average Non-Residential	1.00	$0.32

Table 8 – Credit Allowance per $1000 Valuation

CREDIT ALLLOWANCE FOR BASE YEAR SPACE DEFICIENCY POLICE DEPARTMENT	
Police Station Base Year Deficiency (Sq. Ft.)	8,745
Cost Per Square Foot	$300
Cost to Rectify Existing Space Deficiency	$2,623,484
City Assessed Valuation	$2,885,983,700
Deficiency Cost Per $1000 Valuation	**$0.91**

Table 9 – Credit Allowance and Net Impact Fee Schedule
Police Department

Credit Allowances for Base Year Deficiency and Net Impact Fee Assessment	Avg Asssessed Value	Credit Allowance Per $1000 Valuation: **$0.91**	**Impact Fee Schedule**
Residential Uses	Assessment Per Dwelling Unit	Credit Per Unit	**Per Dwelling Unit**
Single Detached	$ 290,000	($264)	**$276**
Townhouse	$ 177,000	($161)	**$276**
Two to Three Family	$ 126,000	($115)	**$418**
Apartments 4+ Units	$ 93,000	($85)	**$407**
Manufactured Housing	$ 76,000	($69)	**$166**
Non-Residential Uses	Assessment Per Sq. Foot	Credit Per Sq. Foot	**Fee Per Square Foot**
Retail, Including Restaurants, Clubs	$ 78	($0.07)	**$0.37**
Offices and Commercial Services	$ 92	($0.08)	**$0.14**
Industrial, Transportation, Whse, Communic.	$ 42	($0.04)	**$0.08**
Nursing Homes & Assisted Living	$ 77	($0.07)	**$0.00**
Other Institutional Uses	$ 123	($0.11)	**$0.33**
Average Non-Residential	$ 71	($0.06)	**$0.26**

5. Recommended Use of Impact Fee Funds

It is recommended that Police Department impact fees be used to reimburse the City for a portion of the costs to construct a new headquarters facility. Much of the cost of a new facility is attributable to pre-existing needs rather than to new development. Therefore the initial impact fee developed in this report is somewhat low after applying a credit allowance for existing deficiencies in space.

Impact fees may be used to offset the cost of debt service or to recoup investments already made in anticipation of growth. Therefore, the impact fees and interest on the fee account may be used to either reduce the overall cost of building construction at the front end, or to help pay debt service over time and reduce the property tax impact of such an expansion on existing taxpayers.

E. FIRE & RESCUE DEPARTMENT IMPACT FEE

The Dover Fire & Rescue Department is constructing a new North End Fire Station of about 14,500 square feet that will complement and expand fire and rescue services city-wide. Existing stations include the old Central Fire Station and the South Station built in the 1960s. The construction of the new station will essentially double the total floor area of Fire & Rescue Department buildings serving in the City. The placement of stations and related equipment and staffing is essential to maintaining adequate response times. Growth in traffic has led to a gradual increase in response times.

While the new station is needed to accommodate new development, its costs are not entirely attributable to future needs. A new station has been cited as a need since for at least 20 years (the 1988 City Master Plan recommended that a new North End station be developed). Therefore a portion of the costs involved in funding the new building are attributable to past growth that has increased demand on Fire and EMS services. About 60% of the Fire & Rescue Department's total calls are for medical-related incidents.

The City of Dover Fire & Rescue needs and level of service goals are extensively documented in the its Strategic Plan 2006-2011 and the plans for phasing in of equipment deployment and staffing/operations among three stations are described in its 2008 Capital Improvements Program: North End Fire Station & Related Apparatus (December 6, 2006). Part of the rationale for the new station is that it has the potential to reduce response times to the north end of the City by three to four minutes.

For the purpose of impact fee assessment, it will be assumed here that the fire service should be viewed as a city-wide network providing coverage to all land uses from three locations. It is common for equipment and staffing to shift by location as demands change. It is necessary for one station to provide backup coverage to the others. Therefore, capital cost requirements are assumed to be distributed across the entire City rather than segmented into specific geographic areas.

1. Fire & Rescue Department Buildings

The existing Central Fire Station and the South Station have a combined floor area of about 14,500 square feet. The addition of the new North Station will provide an additional 14,500 square feet, essentially doubling the amount of building space available to fire and rescue services. The cost of the new fire station space is estimated at $210 per square foot (including construction, architecture, and engineering and survey fees). This cost excludes land, which was donated by Liberty Mutual for the North End Fire Station site. In this model, the cost is limited to buildings only and does not reflect the cost of Fire & Rescue Department apparatus. A separate model is presented later in this report that includes an allowance for apparatus.

Upon completion of the North End Station, the City will have a total of 29,000 square feet of fire station space. Assuming that the total floor area is capable of serving a future City population of 35,000, total space would average 0.83 square feet per capita in the horizon year.

It is clear that additional station space has been needed for some years; therefore some existing deficiency in space must be assumed. At the ratio of 0.83 square feet per capita, the City's base year need may be estimated as an additional 9,282 square feet attributable to the 2007

population. The value of constructing this amount of space has been used to calculate the value of pre-existing deficiencies in space and related credit allowances to the fee payer.

2. Capital Investment in Apparatus, Gear & Capital Equipment

Maintenance of fire fighting capability is dependent on the periodic replacement and improvement of major capita equipment, principally major apparatus used for on-site fire fighting and emergency medical & rescue services. In some cases, the municipal investment in capital equipment exceeds the investment in the structures that house them. [2]

The Finance Department provided a fixed assets inventory by department including original acquisition costs and year of purchase. Using this schedule we estimated the current replacement cost of existing department gear, equipment and major apparatus assuming 5% annual (compound) rate of escalation in costs from the original acquisition year. In addition to the existing inventory, $450,000 was added to account for the additional purchase of a new fire truck and related equipment to be housed at the North End Station. Using this method, the total estimated replacement cost of fire apparatus and capital equipment is about $5 million. In total, the overall combined replacement cost of fire stations and major capital equipment of the department is estimated at just over $11 million.

Since the capital investment in fire department vehicles and equipment is of benefit to new development, and because recoupment of the portion of capital costs is allowable under RSA 674:21, V, one of options for impact fee assessment shown in this report includes recovery of a portion of that investment. Thus, part of the impact fee might be used to fund new apparatus and equipment or applied to replacement of existing vehicles with improved equipment. The Fire Department intends to propose that the City create a capital reserve account funded at the level of $50,000 per year to develop an ongoing fund for scheduled replacement of Fire Department vehicles. The capital reserve fund for replacement would not necessarily overlap with the portion of the impact fee based on original acquisition of the equipment, and it is possible that both sources of funds could be combined for equipment purchases.

3. Proportionate Allocation of Costs: Existing vs. New Development

For the purpose of impact fee assessment, it is assumed that the total capital facility investment (buildings plus major capital equipment) represents the cost of facilities sufficient to serve the horizon year population of 35,000. It is possible that additional equipment will become necessary over time; if so, additional planned equipment should be added to the inventory and estimate of investment in future updates to the fee.

The proportion of the total investment in related capital facilities required in the base year (2007) vs. the proportion serving new development is estimated based on existing and future call volume. The call volume is projected in the model using the overall number of Fire/EMS residential calls at the overall annual average of 0.22 per housing unit and non-residential calls at the rate of 0.19 per 1000 square feet of non-residential development.

[2] The inclusion of major public safety apparatus or vehicles depends on whether they can be reasonably defined as "capital facilities" for the purpose of impact fee assessment. RSA 674:21, V defines impact fees to include "construction or improvement of capital facilities." Definitions of "facility" vary – some definitions center on a building or place; others include space and equipment provided to fulfill a particular service or purpose. Impact fee systems in use in other states commonly include fire department apparatus as part of the capital basis of the fee.

Based on the average of base year and future year demands measured by calls for service, residential uses have been assumed to comprise 60% of the future demand on Fire and Rescue facilities, with commercial, institutional, and assisted living uses representing 40% of estimated service demand.

4. Calculation of Fire & Rescue Department Impact Fee

A model for computing proportionate capital costs for the Dover Fire & Rescue Department per unit of new development is shown in Tables 10 and 11. While the proportionate demand on Police Department facilities was based on floor area per full time officer, the Fire & Rescue Department space needs are computed based on overall station space per capita plus a portion of total investment in major capital equipment needed for a horizon year population of 35,000.

The total capital investment allocated to new development in the model includes about $1.53 million in Fire & Rescue Department buildings and about $1.25 million in capital equipment value, or a total capital investment of about $2.78 million attributable to new development (Table 10). In an alternative version, the cost of apparatus and capital equipment is excluded from the capital basis of the fee (see Table 14).

In the Table 10 model the portion of costs allocated to new development is divided by future population growth and projected nonresidential floor area, with about $1.67 million in capital cost allocated to new residential development and about $1.11 million to nonresidential uses. These allocations average to $265 per capita for residential growth and $0.28 per square foot for all new nonresidential development based on the growth projections.

When the cost of apparatus and capital equipment investment is excluded from the cost basis (Table 11), only about $918,000 is allocated to new residential development and $612,000 to future non-residential growth. The resulting capital costs represent $146 per capita for residential development and $0.15 per square foot for average non-residential uses.

As with the Police Department impact fee, the residential impact fee (with the exception of assisted living and apartments for the elderly) is calculated per-capita, and then multiplied by household size to derive a base residential impact fee per single family unit. The fee for a townhouse condominium is based on relative household size. For all other residential uses, the fee is proportionate to the relative Fire & Rescue Department call rate estimated for the type of residential unit.

For commercial, industrial, and other non-residential uses a relative call rate multiplier is used to generate an impact fee that is proportionate to the relative demands of these uses on Fire/EMS services relative to the overall average for the non-residential sector. The average cost per square foot is then multiplied by the relative call rate factors for various land uses to assign a proportionate impact fee per square foot for various subcategories of development.

Credit allowances are deducted from the proportionate capital cost per unit of new development for future debt service costs attributable to existing capital needs. A portion of the property taxes required to fund a portion of debt service on the new North Station has been computed as a credit allowance in Table 12 (computed at $0.56 per thousand assessed value for 2007-08). Table 13 represents a credit allowance for a portion of the bonded debt for a new fire truck needed to make the North Station operational (computed at $0.08 per thousand assessed value).

Table 10 – Fire Department Capital Cost per Unit of Development

FIRE DEPARTMENT IMPACT FEE - DOVER, NH - 2008 - WITH APPARATUS & CAPITAL EQUIPMENT INCLUDED			
Service Demand Factor	Base Year (2007 Est)	Future Service Population Assumed is	Change from Base Year
RESIDENTIAL SECTOR			
Total Persons	28,703	35,000	6,297
Group Quarters Population	959	1,155	196
Household Population	27,744	33,845	6,101
Households (Occupied Units)	12,554	16,117	3,563
Average Household Size	2.21	2.10	-0.11
Total Housing Units @ 4% Overall Vacancy	13,077	16,788	3,711
NON-RESIDENTIAL SECTOR			
Employment (Total Including Government)	16,300	23,092	6,792
Non-Residential Floor Area Total	9,600,000	13,600,000	4,000,000
Non-Residential Uses: Floor Area Per Employee	589	589	
CALLS FOR SERVICE ESTIMATE			
Residential @ 0.22 Per Housing Unit	2,877	3,693	816
Non-Residential @ 0.19 per 1000 Sq. Ft.	1,824	2,584	760
Total Projected Annual	4,701	6,277	1,576
Floor Area of Facilities	**Existing**	**With New North Station**	**Change from Base Year**
Floor Area of Fire Stations (Sq. Ft.)	14,500	29,000	14,500
Station Space Required Per Capita	0.83	0.83	
Population Supportable by Facilities	17,500	35,000	
Space Deficiency of Existing Facilities Relative to 2007 Population	9,282		
	Demand on Capital Facilities		
Building Costs for Fire Stations	Existing Demand	Total Investment Including Expanded Facilities	Portion Allocated to New Development
Facility Development Cost Per Sq. Ft. 2008	(Calls Basis)	$210	
Attributed Building Costs - Fire Department	$4,560,584	$6,090,000	**$1,529,416**
Major Apparatus & Vehicles - Replacement Cost	$3,744,322	$5,000,000	**$1,255,678**
Total Capital Facility Investment - Fire Dept.	$8,304,906	$11,090,000	**$2,785,094**
	Base Year	Future Year	Average
Public Safety Demand By Sector - Fire and EMS			
Residential Share of Demand (calls basis)	61%	59%	**60%**
Non-Residential Share of Demand (calls basis)	39%	41%	**40%**
Cost Attributable to New Residential Development			$1,671,057
Cost Attributable to New Non-Residential Development			$1,114,037
Residential Cost Per Capita			$265
Non-Residential Cost Per Sq. Ft.			$0.28
PUBLIC SAFETY FACILTY COSTS PER UNIT OF NEW DEVELOPMENT - FIRE DEPARTMENT			
Residential Capital Cost Per Dwelling Unit		Residential FD Call Multiplier	Capital Cost Impact Per Unit
Single Detached		1.00	$716
Townhouse		0.81	$580
Two to Three Family		0.70	$499
Apartments 4+ Units		0.61	$437
Manufactured Housing		0.90	$646
Non-Residential Capital Cost Per Square Foot		Non-Residential FD Call Multiplier	Capital Cost Per Sq. Ft.
Retail, Including Restaurants, Clubs		1.50	$0.42
Offices and Commercial Services		0.64	$0.18
Industrial, Transportation, Whse, Communic.		0.28	$0.08
Nursing Homes & Assisted Living		2.35	$0.65
Other Institutional Uses		1.40	$0.39
Average Non-Residential		1.00	$0.28

Table 11 – Fire Station Capital Cost per Unit of New Development

FIRE DEPARTMENT IMPACT FEE - DOVER, NH - 2008 - BUILDINGS ONLY			
Service Demand Factor	Base Year (2007 Est)	Future Service Population Assumed is 35,000	Change from Base Year
RESIDENTIAL SECTOR			
Total Persons	28,703	35,000	6,297
Group Quarters Population	959	1,155	196
Household Population	27,744	33,845	6,101
Households (Occupied Units)	12,554	16,117	3,563
Average Household Size	2.21	2.10	-0.11
Total Housing Units @ 4% Overall Vacancy	13,077	16,788	3,711
NON-RESIDENTIAL SECTOR			
Employment (Total Including Government)	16,300	23,092	6,792
Non-Residential Floor Area Total	9,600,000	13,600,000	4,000,000
Non-Residential Uses: Floor Area Per Employee	589	589	
CALLS FOR SERVICE ESTIMATE			
Residential @ 0.22 Per Housing Unit	2,877	3,693	816
Non-Residential @ 0.19 per 1000 Sq. Ft.	1,824	2,584	760
Total Projected Annual	4,701	6,277	1,576
Floor Area of Facilities	**Existing**	**With New North Station**	**Change from Base Year**
Floor Area of Fire Stations (Sq. Ft.)	14,500	29,000	14,500
Station Space Required Per Capita	0.83	0.83	
Population Supportable by Facilities	17,500	35,000	17,500
Space Deficiency of Existing Facilities Relative to 2007 Population	9,282		

Building Costs for Fire Stations	Demand on Capital Facilities: Existing Demand	Total Supported by Expanded Facilities	Portion Allocated to New Development
Facility Development Cost Per Sq. Ft. 2008	(Calls Basis)	$210	$210
Attributed Building Costs - Fire Department	$4,560,584	$6,090,000	**$1,529,416**
Other Capital Facilities of Department	Not Included in This Model		
Capital Investment Major Apparatus			
Total Capital Facility Investment - Fire Dept.	$4,560,584	$6,090,000	**$1,529,416**

Public Safety Demand By Sector - Fire and EMS	Base Year	Future Year	Average
Residential Share of Demand (calls basis)	61%	59%	**60%**
Non-Residential Share of Demand (calls basis)	39%	41%	**40%**
Cost Attributable to New Residential Development			$917,650
Cost Attributable to New Non-Residential Development			$611,766
Residential Cost Per Capita			$146
Non-Residential Cost Per Sq. Ft.			$0.15

PUBLIC SAFETY FACILTY COSTS PER UNIT OF NEW DEVELOPMENT - FIRE DEPARTMENT		
Residential Capital Cost Per Dwelling Unit	Residential FD Call Multiplier	Capital Cost Impact Per Unit
Single Detached	1.00	$393
Townhouse	0.81	$319
Two to Three Family	0.70	$275
Apartments 4+ Units	0.61	$240
Manufactured Housing	0.90	$356
Non-Residential Capital Cost Per Square Foot	Non-Residential FD Call Multiplier	Capital Cost Per Sq. Ft.
Retail, Including Restaurants, Clubs	1.50	$0.23
Offices and Commercial Services	0.81	$0.12
Industrial, Transportation, Whse, Communic.	0.28	$0.04
Nursing Homes & Assisted Living	2.35	$0.36
Other Institutional Uses	1.40	$0.21
Average Non-Residential	1.00	$0.15

Table 13
Credit Allowance for Fire & Rescue Department Space Deficiency in 2007

CREDIT CALCULATION - NORTH END FIRE STATION SCHEDULED DEBT SERVICE			
Fiscal Year	Total Principal Payment	Total Interest Payment	Total Payment
2009	$150,000	$124,619	$274,619
2010	$150,000	$118,244	$268,244
2011	$150,000	$111,869	$261,869
2012	$150,000	$105,494	$255,494
2013	$150,000	$99,119	$249,119
2014	$150,000	$92,744	$242,744
2015	$150,000	$86,369	$236,369
2016	$150,000	$79,994	$229,994
2017	$150,000	$73,619	$223,619
2018	$145,000	$67,244	$212,244
2019	$145,000	$61,081	$206,081
2020	$145,000	$54,738	$199,738
2021	$145,000	$48,031	$193,031
2022	$145,000	$41,325	$186,325
2023	$145,000	$34,438	$179,438
2024	$145,000	$27,550	$172,550
2025	$145,000	$20,663	$165,663
2026	$145,000	$13,775	$158,775
2027	$145,000	$6,888	$151,888
PV of Future Payments (2009-2027) @ 6% discount			$2,520,592
Percent of Capacity Required as of 2007			64%
Credited Amount			$1,613,527
Net Local Assessed Valuation			$2,885,983,700
Credit per thousand assessed value			$0.56

Table 14
Credit Allowance for New Fire Truck Added at North Station

CREDIT CALCULATION - ADDITIONAL FIRE TRUCK FOR NORTH STATION			
Fiscal Year	Total Principal Payment	Total Interest Payment	Total Payment
2009	$30,000	$18,263	$48,263
2010	$30,000	$16,988	$46,988
2011	$30,000	$15,713	$45,713
2012	$30,000	$14,438	$44,438
2013	$30,000	$13,163	$43,163
2014	$30,000	$11,888	$41,888
2015	$30,000	$10,613	$40,613
2016	$30,000	$9,338	$39,338
2017	$30,000	$8,063	$38,063
2018	$30,000	$6,788	$36,788
2019	$30,000	$5,513	$35,513
2020	$30,000	$4,200	$34,200
2021	$30,000	$2,813	$32,813
2022	$30,000	$1,425	$31,425
PV of Future Payments (2009-2027) @ 6% discount			$382,460
Percent of Capacity Required as of 2007			64%
Credited Amount			$244,827
Net Local Assessed Valuation			$2,885,983,700
Credit per thousand assessed value			$0.08

The combined credit allowance from Tables 13 and 14 (a total of $0.64 per thousand valuation) is deducted from the total capital cost per unit computed for buildings plus apparatus and capital equipment to arrive at the net impact fees shown below in Table 15.

Table 15 – Fire Department Impact Fee A
Including Apparatus and Capital Equipment

Credit Allowances for Base Year Deficiency and Net Impact Fee Assessment	Avg Asssessed Value	Credit Allowance Per $1000 Valuation: **$0.64**	**Impact Fee Schedule**
Residential Uses	Assessment Per Dwelling Unit	Credit Per Unit	**Per Dwelling Unit**
Single Detached	$290,000	($186)	$530
Townhouse	$177,000	($113)	$467
Two to Three Family	$126,000	($81)	$418
Apartments 4+ Units	$93,000	($60)	$377
Manufactured Housing	$76,000	($49)	$597
Non-Residential Uses	Assessment Per Sq. Foot	Credit Per Sq. Foot	**Fee Per Square Foot**
Retail, Including Restaurants, Clubs	$ 78	($0.05)	**$0.37**
Offices and Commercial Services	$ 92	($0.06)	**$0.12**
Industrial, Transportation, Whse, Communic.	$ 42	($0.03)	**$0.05**
Nursing Homes & Assisted Living	$ 77	($0.05)	**$0.60**
Other Institutional Uses	$ 123	($0.08)	**$0.31**
Average Non-Residential	$ 71	($0.05)	**$0.23**

An alternative, lower impact fee computation is shown in Table 16 in which the cost of vehicles and capital equipment has been excluded from both the capital cost basis and from the credit allowances.

Table 16: Fire Department Impact Fee B
Excluding Fire Apparatus and Capital Equipment

Credit Allowances for Base Year Deficiency and Net Impact Fee Assessment	Avg Asssessed Value	Credit Allowance Per $1000 Valuation: **$0.56**	**Impact Fee Schedule**
Residential Uses	Assessment Per Dwelling Unit	Credit Per Unit	**Per Dwelling Unit**
Single Detached	$290,000	($162)	$231
Townhouse	$177,000	($99)	$220
Two to Three Family	$126,000	($71)	$204
Apartments 4+ Units	$93,000	($52)	$188
Manufactured Housing	$76,000	($43)	$313
Non-Residential Uses	Assessment Per Sq. Foot	Credit Per Sq. Foot	**Fee Per Square Foot**
Retail, Including Restaurants, Clubs	$ 78	($0.04)	**$0.19**
Offices and Commercial Services	$ 92	($0.05)	**$0.07**
Industrial, Transportation, Whse, Communic.	$ 42	($0.02)	**$0.02**
Nursing Homes & Assisted Living	$ 77	($0.04)	**$0.32**
Other Institutional Uses	$ 123	($0.07)	**$0.14**
Average Non-Residential	$ 71	($0.04)	**$0.11**

F. SUMMARY OF PUBLIC SAFETY IMPACT FEE ASSESSMENT SCHEDULES

The dollar amounts shown in the Fire and Police Department impact fee models are summarized in the alternative impact fee schedules A and B in Tables 17 and 18 below. Impact fees for residential uses are shown per dwelling unit. The fees for non-residential uses are computed on a per square foot basis.

In practice a single public safety impact fee may be assessed to new development. However, it is recommended that the fees collected be placed in two separate capital facility amounts: one for Police Department and one for Fire & Rescue Department facilities. In this way, appropriate capital allocations may be made from the respective impact fee funds to pay for the respective facilities for which they were assessed. Impact fee funds may also be used to offset a portion of the cost of new equipment or improved replacement equipment that enhances the response time or capacity of either department to serve new development.

Table 17: Public Safety Impact Fees – Alternative Schedule A

PUBLIC SAFETY IMPACT FEE ASSESSMENT SCHEDULE INCLUDING VALUE OF FIRE APPARATUS & CAPITAL EQUIPMENT			
Use Category	**Public Safety Impact Fees Per Dwelling Unit**		
General Residential Uses	Police	Fire	**Total Public Safety**
Single Detached	$276	$530	**$806**
Townhouse	$276	$467	**$743**
Two to Three Family	$418	$418	**$836**
Apartments 4+ Units	$407	$377	**$784**
Manufactured Housing	$166	$597	**$764**
Other Uses Based on Assessment Per Square Foot	**Public Safety Impact Fees Per Square Foot**		
	Police	Fire	**Total Public Safety**
Retail, Including Restaurants, Clubs	$0.37	$0.37	**$0.74**
Offices and Commercial Services	$0.14	$0.12	**$0.26**
Industrial, Transp, Whse, Communications	$0.08	$0.05	**$0.13**
Nursing Homes & Assisted Living	$0.00	$0.60	**$0.60**
Other Institutional Uses	$0.33	$0.31	**$0.64**
Average Non-Residential or Other	$0.26	$0.23	**$0.49**

Table 18: Public Safety Impact Fees – Alternative Schedule B

PUBLIC SAFETY IMPACT FEE ASSESSMENT SCHEDULE - POLICE AND FIRE STATION BUILDINGS ONLY			
Use Category	**Public Safety Impact Fees Per Dwelling Unit**		
General Residential Uses	Police	Fire	**Total Public Safety**
Single Detached	$276	$231	**$507**
Townhouse	$276	$220	**$496**
Two to Three Family	$418	$204	**$622**
Apartments 4+ Units	$407	$188	**$595**
Manufactured Housing	$166	$313	**$479**
Other Uses Based on Assessment Per Square Foot	**Public Safety Impact Fees Per Square Foot**		
	Police	Fire	**Total Public Safety**
Retail, Including Restaurants, Clubs	$0.37	$0.19	**$0.56**
Offices and Commercial Services	$0.14	$0.07	**$0.21**
Industrial, Transp, Whse, Communications	$0.08	$0.02	**$0.10**
Nursing Homes & Assisted Living	$0.00	$0.32	**$0.32**
Other Institutional Uses	$0.33	$0.14	**$0.47**
Average Non-Residential	$0.26	$0.11	**$0.37**

The models for impact fee assessment should always reflect, rather than define, capital improvement planning for related facilities and services. The impact fee assessment models are intended to reasonably represent the level of capital investment that the City will support, with a proportionate allocation of that cost to new development. The models should not be used to limit the way in which future capital improvement needs are defined for public safety facilities. However, as these needs and plans change over time, the impact fee assessment should be modified accordingly. Once adopted, impact fee schedules should be updated periodically to assure that the fee basis keeps pace with current capital costs.

IMPACT FEES FOR PUBLIC RECREATION FACILITES

City of Dover
New Hampshire

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Executive Summary

This report provides two alternative methods and schedules for a recreation impact fee assessment to new residential development. One method has been based on the application of minimum facility standards (number of facilities needed per 1000 residents). The other is based on the average value per capita of existing and planned investments in recreation facilities serving a horizon year population. Alternatives are illustrated for each approach that show impact fees with and without an allowance for the recoupment of City investments in raw land. However, the recommended alternatives are the schedules that exclude raw land costs from the basis of assessment.

Recommended Range of Recreation Impact Fee

Structure Type	Facility Standards Method	Investment Method
Single Family Detached	$1,120	$1,184
Single Family Attached (Townhouse)	$956	$1,068
Duplex and 3 Unit Structures	$1,003	$1,169
Multifamily Structures 4+ Units	$746	$870
Manufactured Housing	$946	$1,137

The alternative options computed in this report, which include an allowance for raw land values, would be about 30% to 35% higher than the fee schedules shown above. The Consultant's recommendation is that the investment method is probably preferable, as it better reflects the nature of anticipated recreation facility investment in the City which is likely to focus on redevelopment of existing recreation sites to enhance their capacity to accommodate future demands.

The fee schedules have been computed in a manner that excludes the investment in parcels that constitute solely public open space Under NH RSA 674:21, V impact fees may be assessed for public recreation facilities, *"...not including public open space."*

The impact fee amounts are intended to reflect the cost of recreation facility investments that the City may reasonably be expected to incur to provide adequate facilities for all residents. The recreation impact fee assessment schedule is intended for application only to residential development. While there are probably some marginal impacts on recreation demands from non-residential development, these effects are not readily quantified, and would tend to generate minimal fees for this sector if implemented. The City may still evaluate the potential for park and open space dedications, however, from non-residential development during the site plan review process.

The models herein are not a substitute for the more detailed recreation planning process used to identify recreation opportunities and to define future needs. As these needs continue to evolve, and as more detailed plans are developed, the cost basis for the recreation impact fee may be amended accordingly. The implementation of recreation impact fees will require the Planning Board to adopt one of the alternative fee schedules and its underlying basis of assessment.

The adoption of recreation impact fees does not preclude the City from requiring, in the course of subdivision and site plan review, that open space or park land be set aside for public use, as authorized under RSA 674:36.

A. Authority and Limitations

New Hampshire RSA 674:21, V authorizes municipalities to assess impact fees to new development for the cost of "...public recreational facilities not including public open space". Impact fees may be used to recoup the costs of capital improvements made in anticipation of the demands of future growth or can be used to fund future improvements needed to support new residential development. The cost of simply upgrading or improving existing recreation facilities is not chargeable in the form of an impact fee assessment. Recreation impact fee assessments cannot be based on the cost to provide new facilities that are already needed to support the demands of the existing population. If the existing inventory of recreation facilities is insufficient, based on the application of the same standards to be applied to new development, then existing shortages of facilities should be paid for using funds other than impact fee revenue.

An important caveat of the New Hampshire authorizing legislation (RSA 674:21, V) is its prohibition on the use of impact fees to pay for *public open space* (which is undefined in the statute). Since parks and other recreation land may serve multiple functions including active recreation and sports as well as open space, it is necessary to interpret this term. In this report, it is assumed that the level of active programs, recreational sports uses, and the degree of improvements to a particular parcel, and the presence of developed facilities on the property are reasonable means to distinguish between sites comprise "recreational facilities" from those serving principally as "open space" within the meaning of RSA 674:21, V.

Municipal land which is held for the primary purposes of water and wetland conservation, natural habitat and wildlife protection, preservation of aesthetics or views may support passive recreational uses such as walking and hiking. While these spaces are supportive of some forms of recreation, such parcels primarily serve open space objectives, and are not considered to be *recreation facilities* for the purposes of the impact fee calculations in this study. While providing the valuable function of open space preservation, such lands are not significantly developed or improved with capital facilities or equipment, and the recreation uses they support tend to be subordinate to their conservation and preservation functions.

B. Inventory of Recreation Facilities

1. Existing Facility Inventory [1]

The inventory of existing public recreation facilities in Dover includes those owned and operated by the School District. The inventory is based on the original information contained in the Master Plan (2000) Open Space and Recreation Chapter, updated to 2008. (See Table 1 on the next page).

Some facilities listed are privately owned and operated, and some are located on State land. Facilities available to public recreation and Little League programs are counted as part of the inventory of facilities for the purpose of estimating the inventory available to residents. The acreage attributable to public recreation, however, will be limited to those sites that are owned or operated by the City or School District.

[1] As of September 2008, the City is in the process of updating its Recreation Master Plan and related facility inventory. If the facility inventory changes through the addition or loss of facilities, the inventory in Table 1 should be amended accordingly, which would allow the impact fee computations based on the "facility standard method" to be updated.

Table 1

DOVER PUBLIC RECREATION FACILITY AND OPEN SPACE INVENTORY - 2008

LOCATION AND TYPE			FACILITIES AND IMPROVEMENTS													
NAME OF AREA OR FACILITY	Acreage for Outdoor Recreation	Primary Recreation Use/Other Uses on Site	Gymnasium	Basketball, Volley Ball, Hardcourts (Outdoor)	Tennis Courts	Baseball, Softball, Little League Fields	Soccer, Football and Multipurpose	Running Track	Outdoor Swimming Pool	Indoor Swimming Pool	Playground Equipment/Swings	Ice Skating Arena	Pavilion/Sitting Areas	Picnicking Areas	Walking & Jogging	Other facilities supported; notes on improvements indicated by CIP
ACTIVE RECREATION AREAS OR SITES																
Bellamy Park	33.0	Community park									1			1	x	
Guppey Park, IncludingThomson Pool	39.0	Community park with ice arena, 50 meter outdoor pool		1		1			1		1	1	1			Full reconstruction planned 2009-2010 @ $550,000 plus $750,000 in 2010-2011 for replacement of pool bath house. Glass paneled pool enclosure in 2012 @ $2.1 MM.
Henry Law Park Including Dover Indoor Pool	6.0	Community park with year-round indoor pool	1							1	1		1	1	x	Create solarium for expanded deck and solar gain - $188,000 planned for 2011
Maglaras Park	29.0	Community park				2	1									4-Year improvement plan $6.95MM incl. full size lit art. turf baseball field w/500 seat grandstand, mulitpurpose field, 2 basketball & 2 tennis courts, BMX bike area, tot lot & play area. Baseball field may support an overlap rectangular field. Plaza, storage, restroom & concessions building, parking, walking trails.
Garrison Hill Park	55.0	Community park with observation tower												1		
Dover Middle/High School	23.0	School park with multiple facilities	1		4	3	4	1							x	Replace Dunaway Football field with artificial turf - increase uses from 40 to 250 per year. 2012 project @ $800,000 - 1/2 funded by City; 1/2 by School District
Garrison Elementary School	22.0	School park	1	2	2		2				1					
Woodman Park School	10.0	School park with multiple facilities	1	2	4	1	1	1			1					
Horne Street School	13.2	School park with multiple facilities	1	1	2	1	1				1					
Morningside Park	1.6	School park					1				1		1			
Hancock Park	0.6	Nbhd playground		1							1					
Park Street Park	1.0	Nbhd playground					1				1		1		x	
Long Hill Memorial Park	12.0	Nbhd playground		1	2		1				1			1	x	
Applevale Park	2.2	Nbhd playground		1							1					
Amanda Howard Park	0.5	Mini park									1					Total site renovation and possible expansion - 2009 - $200,000
Cocheco Riverwalk		Community park											1	1	x	
Fish Ladder Park	0.1	Mini park											1			
Willand Pond Park	25.0	Community Park												1	x	
Shaw's Lane	12.0					2	3									Site has restrooms, concession stand
Sullivan Drive	5.2	26 ac; est. 80% wet				2							1			Site has batting cage, concession stand
McConnell Center		Rec Dept HQs														
St.Thomas HS	30.0	Private			2											
Beckwith Little League	3.0	Private				2										
Southside Little League	2.0	Private				2										
Hilton State Park	10.0	State Park, historic site with boat ramp, picnicking, playground									1		1			
Total Recreation Acreage with Improvements or Facilities	335.4		5	9	16	16	15	2	1	1	13	1	8	6		
SUBTOTAL CITY AND PUBLIC SCHOOLS	290.4		5	9	14	12	15	2	1	1	12	1	7	6		
ALL OTHER	45.0		0	0	2	4	0	0	0	0	1	0	1	0		

Table 1 (previous page) illustrates the recreation sites and facilities comprising the principal public recreation facilities in the City. Other areas such as conservation and open space land, which may support forms of passive recreation, are not included in this inventory. The purpose of establishing this inventory is to distinguish between open space (for which impact fees may not be assessed) and public recreation facilities. Below are the draft definitions that are proposed for consideration in amending the Dover impact fee ordinance that would reflect these distinctions.

Proposed definitions relating to recreation impact fee assessment:

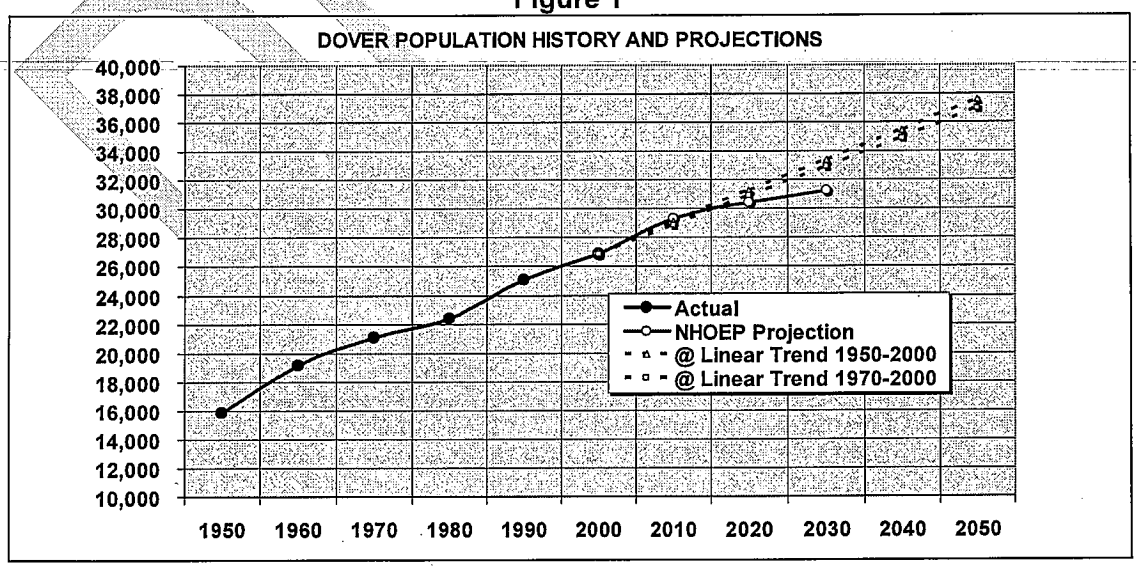
> Public open space means a parcel of land essentially unimproved and principally intended for open space preservation, natural resource conservation, or similar uses. For the purposes of this Article, City parks that do not include "public recreation facilities" constitute public open space.
>
> Public recreation facilities means the land and facilities owned or operated by the City of Dover, other than public open space, that are used or designed for the conduct of recreational sports or recreation programs, and which include equipment or substantial improvements to the land to provide indoor or outdoor public recreation opportunities. Public recreation facilities may also include those portions of public open space parcels that are improved with developed trail systems for uses such as hiking or cross country skiing.

C. Population and Housing Growth

1. Population Trend and Projections

Recreation impact fees are typically assessed only to new residential development. While some recreation demand may be generated by non-resident employment in the City, the planning process for recreation centers on serving the needs generated by residents. Figure 1 illustrates historic trends and alternative projections of Dover's population. Data from the Census years 1950 through 2000 are actual counts, while mathematical projections are shown for the intervening years.

Figure 1



The most recent population projection by the NH Office of Energy and Planning (NHOEP) forecasts a 2030 population of 31,250. The projections based on long term linear trends in Dover yield a 2030 projection of about 33,000. The linear projections, when extrapolated further, suggest future population of about 35,000 by 2040 and 37,000 by 2050.

2. Buildout Estimates from the Master Plan

In its 2007 update to the Land Use chapter of the City Master Plan, the City Planning Department has estimated that, based on estimates of developable land by zoning district, a potential for an additional 3,155 residential units (under current allowable densities).

According to NHOEP the City had 13,095 total dwelling units as of 2006. The total number of occupied units (households) as of 2006 was estimated at 12,584. The NHOEP estimates of population for 2006 showed a total population of 28,703. With a subtotal of 947 in group quarters and 27,756 persons in households estimated in 2006, average household size in Dover is estimated at 2.21 in 2006 to the 2000 total would bring estimated buildout units to about 16,250. Assuming a 97% occupancy rate and constant household size at 2.21 would equal a future buildout population estimate of about 34,500. If household size continues to decline, however, say to 2.10 by the buildout year, total population could be lower at about 32,760.

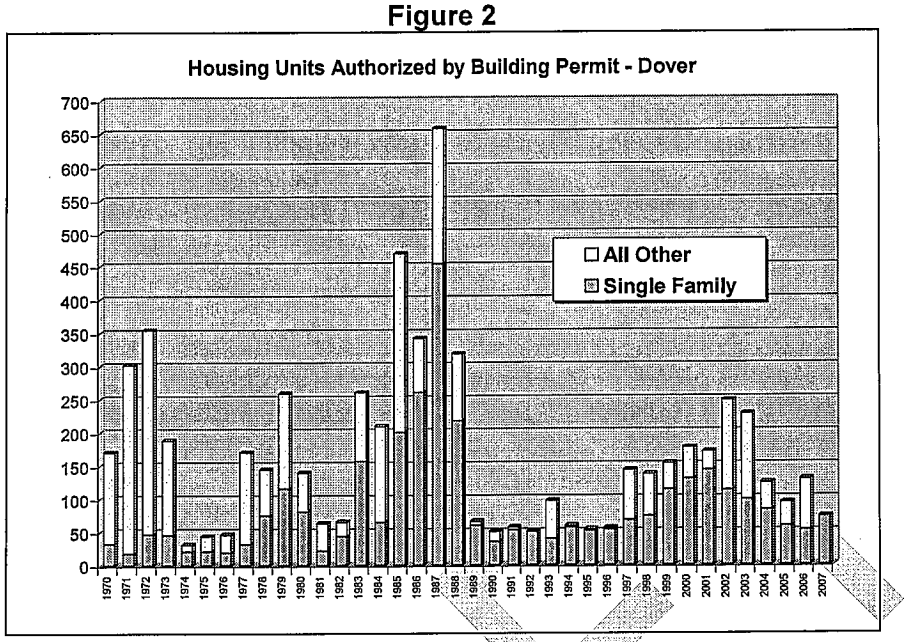
3. Housing Units Authorized by Permit

Table 2 and Figure 2 illustrate the history of residential development based on building permits issued in the City of Dover from 1970 through 2007. The long-term average for this entire period was 168 residential units per year; for the period 2000-2007 the average has been 156 units per year. If an average growth of 150 units per year were maintained, buildout (as estimated in the Master Plan's Land Use Update) could be reached around the year 2028. The population affects of this housing growth could be higher if single family homes dominate new construction (single family homes have larger average household size).

Table 2

Total Housing Units Authorized				
Period	Single Family	2+ Family	Manufactured	All Types
1970s	428	1,191	89	1,708
1980s	1,561	941	86	2,588
1990s	597	212	48	857
2000-2007	753	458	33	1,244
Average Annual Units Authorized				
Period	Single Family	2+ Family	Manufactured	All Types
1970s	43	119	9	171
1980s	156	94	9	259
1990s	60	21	5	86
2000-2007	94	57	4	156

Figure 2



At 150 to 200 units per year, and assuming about persons per household (net growth) new residential development could generate an additional 300 to 400 persons per year, or 6,000 to 8,000 people over a 20-year period, provided that the City has the capacity to continue to absorb housing units at the historical pace.

Table 3: Long Term Residential Growth Assumption

Service Demand Factor	Base Year (2007 Est)	Future Service Population Assumed is 35,000	Change from Base Year
RESIDENTIAL SECTOR			
Total Persons	28,703	35,000	6,297
Group Quarters Population	959	1,155	196
Household Population	27,744	33,845	6,101
Households (Occupied Units)	12,554	16,117	3,563
Average Household Size	2.21	2.10	-0.11
Total Housing Units @ 4% Overall Vacancy	13,077	16,788	3,711

Public open space has been excluded from the facility cost assumptions for the impact fee calculations in this report. Therefore, the standards and cost basis of the recreation fee will exclude City investments in parcels that comprise only public open space. This approach to impact fee assessment is used in order to create a fee amount that is consistent with the limitations in RSA 674:21, V.

D. Recreation Facility Plans

The Dover Capital Improvements Program describes a number of significant investments proposed for the improvement and expansion of recreation facilities in the City. The CIP indicates that due to the difficulty of securing new sites for recreation in an urban center,

Dover's future investment in recreation facilities is likely to center primarily on maximizing the use of existing recreation sites and enhancing their ability to serve a growing population, rather than on the acquisition of new land to accommodate facility expansion.

Table 4 – Recreation Facility Plans – Dover Capital Improvement Program

Planned Facility Investments (CIP)	Fiscal Year of Implementation	Estimated Cost	Description or purpose of improvement
Maglaras Park Development	2009-2011	$6,950,000	Increases number of recreation facilities and improves major central City park
Guppey Park Improvements	2009-2010	$550,000	Complete reconstruction, drainage and lighting.
Jenny Thomson Pool Bathouse Reconstruction	2010-2011	$750,000	Remove original building (38 yrs old) and replace.
Amanda Howard Park Renovation	2009	$200,000	Total site renovation and replacement of outdated equipment.
Jenny Thompson Pool Enclosure	2012	$2,100,000	Cover pool for year round use - expand use from 4 mos./yr to all year.
Dover Indoor Pool Solarium	2011	$188,000	Adds natural lighting to 1968 pool building; improve energy efficiency.
Dunaway Field Turf Replacement (*)	2012	$400,000	Current field limited to 40 uses per yr; artif. turf would allow 250 uses per yr. Dollar amount shown is 1/2 of cost (balance from School District).
Total Planned Improvements	2009-2012	$11,138,000	

** The cost shown on this line is 50% of the total project cost (balance to be paid by School District). Only the City share of cost has been included in the projected improvement cost to avoid any duplication with the capital basis for school impact fees.*

The comprehensive plan for Maglaras Park includes the development of a competition baseball field with grandstand seating, concession and restroom facilities, storage building, upgrades and expansions to walkways, access and parking, the creation of two new tennis courts and two new basketball courts, a BMX bike area, and construction of a new play area/tot lot.

Improvements to the Jenny Thomson pool will expand its capacity to a year-round indoor facility, thus expanding its usage potential. Both Amanda Howard Park and Guppey Park will undergo total reconstruction. Improvements to the Dunaway Field at Dover High School include the installation of artificial turf, which is estimated to result in a six-fold increase in the number of uses per year that it can support.

Table 4 summarizes the key recreation facility improvements proposed in the Dover CIP along with a brief description that reflects the rationale for the project. The City's total planned investment in recreation facilities between 2009 and 2012 is over $11.1 million dollars. While some of this investment is for the reconstruction of existing facilities, the nature of the improvements involves the comprehensive reconstruction of some sites.

In addition to these publicly funded improvements, the City is anticipating the creation of a new downtown waterfront park and riverwalk comprising about two acres of property and riverfront amenities including benches, walkways and gardens. The project would extend the existing riverwalk at Henry Law Park along the waterfront and provide a pedestrian connection to Maglaras Park. These improvements have not been included in the capital basis of the impact fee because the City anticipates that the improvements will be funded privately as a condition of the approval of an adjacent development project.

E. Recreation Impact Fee Computations

1. Base Year vs. Future Recreation Facility Demand

The first step in the impact fee computation is to distinguish between existing needs of the current population (using the most recent NH Office of Energy and Planning estimates for 2007), and growth related needs of the resident population. This requires an identification of the quantity of recreation facilities or planned investment required for a given population. Using such standards as measures of demand, proportionate needs may be defined for a base year population, and projected for a future population.

For the purpose of estimating existing facility needs, the most recent population estimate from the New Hampshire Office of Energy & Planning has been used (2007 population – 28,703). A long-term future population, for the purpose of establishing future needs, is assumed at 35,000 persons, which would essentially represent residential buildout conditions based on the City's most recent estimates of supportable growth in housing units under existing zoning. This population is higher than the 2030 population projection for the City estimated by the NHOEP at 31,250.

2. Facility Standards Fee Basis (Method 1)

a. Facility Standards per 1000 Persons

The Dover Master Plan contains a range of reference facility standards for recreation facilities per 1000 persons, including those issued contained in past editions of New Hampshire Outdoors, the State's comprehensive outdoor recreation planning program. Older standards (1983) from the National Park and Recreation Association (NRPA) are also referenced. These standards were published in the NRPA's Recreation, Park, and Open Space Standards and Guidelines (1983).

As indicated by Dover's Master Plan, the NRPA now discourages the use of strict numerical facility standards in favor of a locally-driven planning process to identify community needs and acceptable levels of service for population[2]. This approach would involve surveys of the user population and estimates of the frequency of use various types of parks and included facilities, ultimately translated to a number of acres of developed recreation space that would be required to accommodate projected usage. This level of detail is not available for Dover at the present time. Therefore, the first method of impact fee assessment relies on the application of minimum standards cited in the existing Dover Master Plan as a rough measure of demand for principal recreation facilities.

The standards referenced in the Dover Master Plan of 2000 include reference to a minimum recommended State standard of 1.0 per 1000 persons for hard courts (basketball, volleyball). The NRPA combined standard for these types of outdoor facilities is much lower at 0.4 per thousand persons. For the purpose of defining needs in this study, the Consultant has used an average of these two ratios, or 0.70 for hard courts excluding tennis.

For the purpose of impact fee assessment, the Consultant has applied standards that are reasonably consistent with the range of facility standards for major facilities as cited in the Dover Master Plan (2000) Open Space and Recreation Chapter with the exception of standards for

[2] See Park, Recreation, Open Space and Greenway Guidelines, National Recreation and Park Association, December 1995.

field sports. The Master Plan established independent need figures, based on analysis of actual field usage, and concluded that there was a shortage of athletic fields relative to existing demand.

The need for athletic fields as identified in 2000 is summarized in Table 5 below. Based on these need estimates, the Consultant has applied a planning ratio of 0.70 fields per 1000 persons for each of the two field categories (diamond and rectangular field types) to estimate base year and future year needs as of 2008.

Table 5 – Fields Needed as of 2000

Field Inventory and Needs Estimate - 2000 Master Plan - Recreation Chapter				
Field Type	2000 Inventory	Additional Facilities to Meet Year 2000 Demand	Total Required for Population	Number per 1000 Persons (1)
Little League	5	3	8	0.30
Baseball/Softball	7	4	11	0.41
Total "Diamond Fields"	12	7	19	0.71
Soccer, Football, Multiuse ("Rectangular Fields")	14	5	19	0.71
Total Ballfields	26	12	38	1.41
(1) City population was 26,884 at time of 2000 Master Plan estimates				

b. Number of Facilities Required

Selected minimum facility ratios per 1000 persons are applied in Table 6 to the base year population of Dover (2007 estimate) and to a future population of 35,000. The difference between the number of facilities needed for the 2007 population under the selected standard and the current inventory represents the additional number required to meet current (base year) needs. If the current inventory exceeds base year population requirements, then the existing facilities have some remaining capacity to serve future population growth. If the inventory is less than the number required according to the selected standard, then there is a deficiency in the number of facilities available to existing residents.

The standards applied in Table 6 are intended to reflect low to average ratios that are consistent with the needs identified in the 2000 Master Plan, Recreation Chapter. The standards applied for "diamond fields" represent a combination of facilities for baseball, softball, and Little League. The standard for "rectangular fields" represents a combination of fields including soccer, football, lacrosse, and multipurpose and practice fields. The standard for "hard courts except tennis" includes basketball and volleyball courts. The standard for swimming pools is based on the ratio for indoor pools only.

During 2008 then City has been developing a new Recreation Master Plan. Should this plan result in an inventory of facilities or facility standards that differ from those applied in this impact fee model, then the related impact fee calculations should be recomputed using the new standards and inventory.

c. Estimated Cost per Facility

Average costs per recreation facility have been assigned in Table 6 to allocate recreation facility costs between existing residents and those in new development. Sources of these estimates are indicated below:

Diamond and Rectangular Fields: Information from the Recreation Director indicated that the development of new fields on Shaw's Lane would have a comprehensive cost of approximately $1 million to construct 2 full size soccer fields, 2 youth softball fields, and one multipurpose field (average per field: about $200,000). The estimated cost of a new multipurpose field at Maglaras Park is about $235,000 according to the Park Master Plan[3] cost estimates. For the purpose of impact fee assessment, an average cost of $215,000 per field has been used.

Tennis Courts & Outdoor Basketball Courts: The cost for these hard courts, including lighting, fencing, benches and associated equipment averages about $60,000 per court as projected in the Maglaras Park Master Plan cost estimates (see note 2).

Playgrounds: The projected cost to construct and equip a tot lot and play area within Maglaras Park has been projected at just over $75,800 (see note 2). An average cost of $75,000 per facility is applied in the impact fee estimates.

Gymnasiums. A unit cost for a gymnasium has not been included or allocated in the impact fee model, in order to avoid any possible duplication between the school impact fee (which includes school gyms as part of the gross floor area on which space needs and costs are computed for that fee).

Swimming Pool. The City's assessed value for the Dover Indoor Pool site is about $2.4 million. Projected costs for the complete renovation of the larger Jenny Thomson Pool (bathhouse reconstruction, and conversion to indoor use) is projected at $2.85 million. For the purpose of impact fee assessment, the average cost per facility has been estimated at $2.5 million.

Allowance for Raw Land Value. In some forms of impact fee assessment a portion of the cost of underlying land is computed as part of the fee to account for the municipal investment in land prior to recreation facility construction. Based on an analysis of the average assessed value of vacant land in the City (excluding sites with buildings) we estimated an average of about $26,000 per acre for the value of raw land.

d. Capital Cost Allocation and Cost per Unit of New Development

In Table 6 below, the facility standards discusses earlier are applied to the City's base year population (2007) and a projected future population of 35,000. Each of the recreation facilities listed in the table has been assigned an average unit cost to reflect anticipated capital costs per unit.

[3] See Maglaras Park Recreation Master Plan, City of Dover, January 2006 by Kaestle Boos Associates, Inc.

Table 6 – Application of Recreation Standards to Base Year and Future Population

DOVER RECREATION FACILITY NEED ASSUMPTIONS - EXISTING AND FUTURE - UNDER MINIMUM RECOMMENDED STANDARDS										
Recreation Facilities	Facilities Needed Per 1000 Persons	Existing Local Facilities		Base Year Need Computation		Horizon Year		Cost Allocation		
		Actual Number of Units	Number Per 1000 Persons	Population 2007 28,703	Facility (Deficit) or Surplus	Units Req. for Future Pop. 35,000	Attributable to New Development	Cost Per Facility	Cost to Rectify Base Year Deficiencies	Cost to Serve New Development
Diamond Fields - All Levels	0.70	16	0.56	20.1	(4.1)	24.5	4.4	$215,000	$879,802	$947,699
Rectangular Fields - Soccer & Multipurpose	0.70	15	0.52	20.1	(5.1)	24.5	4.4	$215,000	$1,094,802	$947,699
Outdoor Hard Courts Except Tennis	0.70	9	0.31	20.1	(11.1)	24.5	4.4	$60,000	$665,526	$264,474
Tennis Courts	0.50	16	0.56	14.4	1.6	17.5	3.1	$60,000	n.a.	$188,910
Playgrounds/Equipped	0.20	13	0.45	5.7	7.3	7.0	1.3	$75,000	n.a.	$94,455
Swimming Pools (Indoor Std Only)	0.05	2	0.07	1.4	0.6	1.8	0.3	$2,500,000	n.a.	$787,125
Gymnasiums	0.20	5	0.17	5.7	(0.7)	7.0	1.3	n.a.	possible overlap with school fee	
Total Facility Development									$2,640,129	$3,230,361
Acres of Land Supporting Active Recreation Facilities										
(1983 NRPA: recommended range 6.25-10.5 ac. per 1000 persons)								Per Ac.(Raw)		
Total Acres Supporting Recreation Facilities	8.50	290.4	10.12	244.0	46.4	297.5	53.52	$26,000	n.a.	$1,391,637
Total Recreation Facility Investment								Total	$2,640,129	$4,621,998
								Attributable Cost Per Capita - New Development		$734
								Attributable Cost Excluding Land Value Recoupment		$513

In order to maintain a proportionate allocation of capita costs between existing and future residents, the same standards have been applied to the existing and future population to estimate current needs and deficiencies versus those needs attributable to new development (measured by projected population growth).

Based on this model, the cost attributable to new development is $734 per capita including an allowance for the value of raw land, or $513 per capita excluding land value.

e. Credit Allowances

The difference between the number of facilities required for the base year population and the number required for the future population under the same standards is the amount attributable to new development. The additional facilities already needed for the base year population are treated as an existing deficiency that needs to be rectified with funds other than impact fees.

The cost of facilities constructed to meet the needs of the existing base year population may require property tax funding of related improvements and/or debt service. New development that is assessed a recreation impact fee will also participate in paying the cost of rectifying existing base year deficiencies through their property taxes. Therefore, a credit allowance is recommended to recognize the costs incurred by the fee payer for existing facility deficiencies. While there is no statutory requirement for such credits under NH RSA 674:21, V the credit offset is suggested to avoid concerns that a property will pay both for existing base year deficiencies in the number of facilities, plus the cost its impact as new development.

Under the facility standards applied above there is a need for additional investment in diamond and rectangular fields, and outdoor hard courts that is attributable to the needs of the existing population. The estimated cost to rectify base year deficiencies in the number of recreation facilities in Dover as $2.64 million. This is equivalent to $0.91 per thousand valuation based on the City's assessed valuation. That amount is applied to average assessed values per dwelling unit in Table 7 below to compute a credit allowance.

Table 7
Computation of Credit Allowance for Existing Recreation Needs

Capital Value Assigned to Existing Deficiencies	$2,640,129
2008 Assessed Valuation	$2,885,983,700
Investment Required Per 1000 Valuation	$0.91

Credit Allowances Based on Avg Valuation Per Unit

Type of Structure	Average Assessed Valuation	Credit Allowance
Single Family Detached	$ 290,000	($265)
Single Family Attached (Townhouse)	$ 177,000	($162)
Duplex and 3 Unit Structures	$ 126,000	($115)
Multifamily Structures 4+ Units	$ 93,000	($85)
Manufactured Housing	$ 76,000	($70)

f. Impact Fee per Dwelling Unit

To compute the recreation impact fee, the facility cost per capita is multiplied by the number of persons per household in each type of dwelling unit. The credit allowance per unit is then deducted to arrive at the net impact fee to be assessed. Table 8 below shows two versions of the impact fee. One version includes an allowance (recoupment) of original costs for raw land; the second option is based on facility construction only.

Table 8

DOVER RECREATION FACILITY IMPACT FEE - FACILITY STANDARD METHOD						
Type of Structure	Average Household Size (2000 Census - Dover)	Capital Cost Including Land Per Dwelling Unit	Capital Cost Excluding Land Per Dwelling Unit	Less Credit Allowance	Recreation Impact Fee w/Land	**Recreation Impact Fee Excluding Land (Recommended)**
Single Family Detached	2.70	$1,982	$1,385	($265)	$1,717	**$1,120**
Single Family Attached (Townhouse)	2.18	$1,600	$1,118	($162)	$1,438	**$956**
Duplex and 3 Unit Structures	2.18	$1,600	$1,118	($115)	$1,485	**$1,003**
Multifamily Structures 4+ Units	1.62	$1,189	$831	($85)	$1,104	**$746**
Manufactured Housing	1.98	$1,453	$1,016	($70)	$1,383	**$946**

The recommended fee under this model is the fee excluding land value. Under this approach, a single family home would pay a recreation impact fee of $1,120 per unit. Recoupment of the value of original land acquisition may overstate actual costs if much of the land was originally donated for public use, and recoupment of costs incurred many decades ago may not be appropriate as part of the impact fee assessment.

3. Investment Approach (Method 2)

A second method of impact fee assessment is described in this section. This method employs an approach similar to methods applied to compute utility system development charges or investment fees, based on historic and planned facility investments. Essentially, the fee is based on a blended estimate of the replacement cost of existing facilities, less accumulated depreciation, plus the projected costs for future facility development. The total investment value of City recreation facilities is then apportioned across the entire future service population (projected at 35,000 persons as a horizon year, or buildout, population) to arrive at a per capita cost.

a. Estimated Value of Existing Recreation Facilities

The Consultant obtained from the City Finance Department a listing of assets assigned to the Recreation Department. The list includes information on the type of asset, its original acquisition year and cost, and accumulated depreciation. For the purpose of this study, we excluded vehicles, capitalized interest, assets over 40 years old (Butterfield Gym), and other expenditures that did not appear to contribute to facility improvement. The selected asset values comprise athletic fields, buildings and office equipment, tennis and basketball courts, playgrounds and related structures, fencing, paved surfaces, swimming pools and related equipment. Land values were not included in this inventory.

An estimated replacement cost for each asset was estimated by applying the Engineering News Record (ENR) cost index for August 2008 in relation to the ENR index for year of the asset acquisition. The total for selected recreation facilities less the accumulated depreciation assigned by the City to the same assets was computed as a representation of the current value of existing recreation facility assets. The net figure derived by this method was $11.6 million (or about $404 per capita based on the 2007 population). A separate allowance for raw land value, based on the figure used in the facility standard method presented earlier, at $7.55 million for City and School recreation facility sites. If the allowance for land value is included, the current asset value is estimated at $667 per capita.

The next step was to add the future recreation facility investments planned by the City (based on the Capital Improvements Program). The non-vehicle investments associated with facility improvements are listed below in Table 9.

Table 9

Planned Facility Investments (CIP)	Fiscal Year of Implementation	Estimated Cost	Description or purpose of improvement
Maglaras Park Development	2009-2011	$6,950,000	Increases number of recreation facilities and improves major central City park
Guppey Park Improvements	2009-2010	$550,000	Complete reconstruction, drainage and lighting.
Jenny Thomson Pool Bathouse Reconstruction	2010-2011	$750,000	Remove original building (38 yrs old) and replace.
Amanda Howard Park Renovation	2009	$200,000	Total site renovation and replacement of outdated equipment.
Jenny Thompson Pool Enclosure	2012	$2,100,000	Cover pool for year round use - expand use from 4 mos./yr to all year.
Dover Indoor Pool Solarium	2011	$188,000	Adds natural lighting to 1968 pool building; improve energy efficiency.
Dunaway Field Turf Replacement *	2012	$400,000	Current field limited to 40 uses per yr; artif. turf would allow 250 uses per yr. Dollar amount shown is 1/2 of cost (balance from School District).
Total Planned Improvements	**2009-2012**	**$11,138,000**	
** The cost shown on this line is 50% of the total project cost (balance to be paid by School District). Only the City share of cost has been*			
Existing Facilities - Estimated Value			
Estimated Replacement Cost - Recreation Facility Improvements		$14,700,000	Original acquisition value of selected facilities based on City records, indexed to current replacement cost using ENR Index
Less Accumulated Depreciation		($3,100,000)	Accumulated depreciation for same facilities based on City records, through FY 2007
Value Attributed to Existing Facilities		**$11,600,000**	Replacement cost less accum. depreciation
	Acres (City/School Facilities Only)		
Estimated Value Raw Land - 222 Acres - (City property, not including schools)	**290.4**	**$7,550,400**	Estimated at raw land value of $26,000 per acre (unimproved). Estimated value per acre for "vacant land" with no buildings per analysis of Dover assessment data is $26,700 per acre.
Total Value - Existing and Planned Improvements Plus Raw Land Value		$30,288,400	
Future Population Served by Total Facility Investment		35,000	
Average Value of Recreation Investment Per Capita		$865	
Total Facility Existing and Planned Improvements - Excluding Raw Land		$22,738,000	
Future Population Served by Total Facility Investment		$35,000	
Average Recreation Facility Investment Per Capita		$650	

The addition of these improvements (totaling just over $11.3 million) to the existing asset base totals $22.7 million excluding land and $30.3 million if the land value allowance is included. These total investment values are then divided by the horizon year population (35,000) to estimate the value per capita of existing and projected recreation facility investment. The resulting averages are $865 per capita including land and $650 per capita excluding land. (See Table 9.)

b. Credit Allowance

The credit calculation is based on the increase in recreation investment per capita, applied to the base year (2007) population. Based on this method, the increased facility investment needed for the existing population ranges from $198 per capita (excluding land) or $246 per capita (with land) to raise the level of recreation facility investment to desired standards (i.e. to implement the CIP recommendations for recreation, which includes new facilities as well as upgrades of benefit to both existing and new development).

The total amount credited is the amount needed to bring investment per capita for the existing population up to the increased investment standard created by the implementation of the CIP. The increase in per capita investment needed x the 2007 City population = $5.68 million (no land cost) to $7.05 million (with land cost allowance). These amounts are then computed per thousand assessed valuation as a credit value. The cost per thousand valuation is multiplied by the average assessed value per dwelling unit assigned earlier in this report to residential construction to derive a credit allowance per residential unit.

c. Impact Fee per Dwelling Unit – Facility Investment Method

The impact fee is computed based on the horizon year investment per capita, times average household size, less the credit allowance for facility upgrades related to the needs of the existing population.

Table 10 summarizes the impact fee computations per dwelling unit. The recommended fee basis is the version excluding raw land values, as it appears to be a better reflection of the nature and extent of capital facility investment by the City which will center more on facility redevelopment than on land acquisition and development of new sites.

Table 10

CAPITAL INVESTMENT PER HOUSING UNIT AT FUTURE SERVICE POPULATION			
Type of Structure	Average Household Size (2000 Census - Dover)	Total Recreation Facility and Land Investment Per Dwelling Unit	Total Recreation Facility Investment Per Dwelling Unit Excluding Land
Single Family Detached	2.70	$2,336	$1,755
Single Family Attached (Townhouse)	2.18	$1,886	$1,417
Duplex and 3 Unit Structures	2.18	$1,886	$1,417
Multifamily Structures 4+ Units	1.62	$1,401	$1,053
Manufactured Housing	1.98	$1,713	$1,287

CREDIT ALLOWANCE - EXISTING FACILITY INVESTMENT NEED		
	Land Value Included	Land Value Excluded
Total Investment Per Capita with Planned Improvements	$865	$650
Less Existing Facility Value Per Capita	($667)	($404)
Amount Needed Per Capita for Base Year Needs	$198	$246
Facility Investment Needed - Base Year	$5,683,194	$7,060,938
2008 City Assessed Valuation	$2,885,983,700	$2,885,983,700
Credit Allowance Per $1000 Valuation	($1.97)	($2.45)

CREDIT ALLOWANCES PER DWELLING UNIT			
Type of Structure	Average Assessed Valuation	Credit Allowance A	Credit Allowance B
Single Family Detached	$290,000	($571)	($711)
Single Family Attached (Townhouse)	$177,000	($349)	($434)
Duplex and 3 Unit Structures	$126,000	($248)	($309)
Multifamily Structures 4+ Units	$93,000	($183)	($228)
Manufactured Housing	$76,000	($150)	($186)

Net Impact Fee Assessment	Net Impact Fee Including Allowance for Land	Net Impact Fee Excluding Allowance for Land (Recommended)
Single Family Detached	$1,765	**$1,184**
Single Family Attached	$1,537	**$1,068**
Duplex and 3 Unit Structures	$1,638	**$1,169**
Multifamily Structures 4+	$1,218	**$870**
Manufactured Housing	$1,563	**$1,137**

F. Comparison of Alternative Fee Schedules

Each of these approaches represents a proportionate impact assessment on various types of residential structures. It is the intent of the impact fee assessment to reflect an average capital cost per unit of new development this is reasonably representative of the City's likely investment in public recreation facilities. A comparison of the alternatives created by the two methods applied above is illustrated in Table 11 below. The recommended alternatives are shown in columns C and D. These two approaches exclude the recoupment of raw land value as part of the basis for the impact fee. In the opinion of the Consultant, option D best represents the nature of the City's future investment in capital facilities for recreation, which are likely to focus on maximizing the use of existing recreation sites through redevelopment vs. the development of new recreation sites and facilities. The option D approach also reflects the projects included in the City's capital improvements program for public recreation.

Table 11

SUMMARY OF RECREATION FEE MODELS - IMPACT FEES PER DWELLING UNIT				
Structure Type	Including Recoupment of Land Acquisition Value		**Excluding Land Value (Recommended)**	
	A	B	C	D
	Facility Standards Method	Investment Method	Facility Standards Method	Investment Method
Single Family Detached	$1,717	$1,765	**$1,120**	**$1,184**
Single Family Attached (Townhouse)	$1,438	$1,537	**$956**	**$1,068**
Duplex and 3 Unit Structures	$1,485	$1,638	**$1,003**	**$1,169**
Multifamily Structures 4+ Units	$1,104	$1,218	**$746**	**$870**
Manufactured Housing	$1,383	$1,563	**$946**	**$1,137**

An impact fee assessment should reflect, and not dictate, the desired planning and investment standards for City recreation facilities. Neither of the impact fee models used above are intended as a substitute for independent recreation facility planning. The needs of the City are likely to change with time. If planning standards for the quantity of facilities, or long-term CIP plans for recreation facility investment change, then the assumptions of the impact fee models should be modified to amend or update the impact fee assessment.

G. Other Considerations

With or without impact fees for public recreation facilities, New Hampshire communities may still use their subdivision regulations as a tool to set aside appropriate areas for public open space or park land. New Hampshire RSA 674:36 provides that local subdivision regulations may require plats to show adequate open spaces, as well as parks suitably located for playgrounds or other recreational purposes, and may require that such parks be of reasonable size for neighborhood playgrounds or other recreational uses. These provisions allow for dedication of such spaces to public recreational use. The regulations may be used to increase public recreation space, and not merely set asides of land for exclusive use by the property owners within a particular development.

The City subdivision regulations might therefore be used to preserve or enable continuity of open space or recreation trail corridors, and to set aside appropriate future sites for public parks and recreation. If the adopted impact fee basis *includes* the cost of raw land acquisition, then the assessed property should qualify for a full or partial waiver of the fee. But if the fee basis *excludes* the cost of raw land acquisition, the fee will not overlap with recreation land set-asides required by the City as a condition of subdivision or site plan approval.

PUBLIC SCHOOL IMPACT FEE UPDATE - 2008

City of Dover, New Hampshire

Update to the City's 2002 basis of assessment
for public schools

Prepared: September 18, 2008
Revised: September 29, 2008

Prepared for:

Department of Planning and Community Development
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Summary of 2008 Update of Public School Impact Fee

This report comprises an update of the public school impact fee assessment originally adopted by the City of Dover Planning Board in 2002. The original methodology anticipated the need for period adjustments to the principal elements of the assessment formula. This update reviews and modifies the key elements of the basis for school impact fee assessment:

- School floor area per pupil capacity
- Cost of school facilities per square foot
- Enrollment per housing unit
- Credit allowances for pre-existing needs

The adjustment of each of these variables is reviewed in this update, and recommended adjustments to the impact fee schedule have been computed accordingly for consideration by the Planning Board.

The result of the update, using the same model as the original 2002 study, yields the following options as possible impact fee assessment schedules for public schools in 2008.

School Impact Fee Schedules - 2008 Options

Type of Structure	School Fee Per Dwelling Unit	
	A	B
	@ Indexed Cost Per Square Foot	@ State Building Cost Per Square Foot
Single Family Detached	$4,194	$3,654
Single Family Attached	$1,570	$1,340
Duplex & 3 Unit Structures	$4,075	$3,618
Multi-family Structures 4+ Units	$1,210	$1,054
Manufactured Housing	$3,475	$3,110

The alternatives shown above differ only in the estimated cost per square foot assigned to K-8 and high school facilities. The higher fee level in schedule A is probably more representative of the comprehensive cost of school development incurred by the City, while the lower fee level in Schedule B relies on the State Department of Education guideline for cost per square foot for structures and internal building systems only (used in assigning allowable State Building Aid for construction projects in Strafford County).

A. School Facilities and Capacity

1. Facility Capacity Issues in 2002

The descriptions below summarize the condition of public schools relative to enrollment and capacity at the time of the original development of the school impact fee assessment.

Woodman Park School: In 2002, enrollment exceeded the estimated capacity of the school. Anticipated construction and renovation were estimated to allow an increase in the capacity of the school for 80 additional students.

Horne Street School: In 2002, all 18 classrooms were being fully utilized and enrollment had reached the capacity of the school. The library was operating from a converted classroom did not meet State spatial standards. During 2002 four classrooms were added to the school and a cafeteria totaling 8,500 square feet of space was constructed. Overall, the improvements expanded school capacity by 80 students.

Garrison School: In 2002, the school contained 22 classrooms. Music lessons were taking place in locker rooms and preschool classes shared one room. Planned improvements to the school included the addition of 2 or 3 classrooms, and the District planned to improve core facilities with the addition of a gymnasium and up to two specialty rooms for music or other services.

In addition to the above, support space in all three elementary schools such as conference rooms; specialist rooms (reading, speech, and special needs); guidance offices; teacher workrooms, and administrative spaces were either absent or at capacity.

Dover Middle School – This new state of the art school adjacent to the high school was constructed in 1999. Core facilities were designed to accommodate up to 1,200 students grades 5, 6, 7, and 8, but classroom capacity in 2002 was estimated at the lower level of 1,000 students. In October of 2002 the enrollment of 1,137 students already exceeded classroom capacity, and represented 95% of the core capacity. The Capital Improvements Program called for wing extensions to provide additional classroom space and capacity to accommodate additional enrollment.

Dover High School and Regional Career & Technical Center – Built in 1967, this facility had an October 2002 enrollment of 1,682 students in grades 9 – 12. The enrollment at Dover High School includes Barrington and Nottingham tuition students, and the career and technology programs. In 2002 no formal study of the capacity of the high school was available, but using the assumption of not more than 25 students per general instruction classroom, the capacity of the high school was estimated at about 1,600 pupils. With enrollment at 1,682 in 2002, enrollment at the high school was above that capacity. The District anticipated a general renovation and upgrade of the facility that was to include the addition of up to 8 classrooms at the end of the auditorium, which would increase high school capacity by 160 students.

In summary, at the time the original impact fee assessment was prepared, enrollment was at or slightly above estimated facility capacity. The implementation of the impact fee assumed that planned improvements would gradually increase the capacity of elementary, middle school and the high school facilities so that the system would adequately provide for existing needs while creating capacity to absorbing additional enrollment.

2. Improvements to School Facility Capacity 2002-2008

The Dover School District has implemented many of the improvements that were anticipated in 2002. The school capital projects accomplished between 2002 and 2008 that resulted in the expansion of facility space or capacity have included the following:

2002: Horne Street School:
Classroom addition and 8,322 square foot cafeteria added

2003: Alternative School:
A new 1-story, 6-classroom facility was constructed

High School:
Office renovations plus addition of 3 special education classrooms and an 8-room addition

2004: Middle School :
Eight classroom, 2-wing addition completed

2005: Garrison Elementary School:
Phase I of media center and 4 specialized classrooms added

2006: Garrison Elementary School
New regulation-size gym and renovation of administrative space

2007: Woodman Park Elementary School:
3-Story, 17-room addition

The total cost of the above expansion-related projects was just over $12.9 million. In addition to these capacity-related investments, the School District completed other projects during the 2002-2008 period, but these were centered on renovations of existing space, replacements and upgrades to existing school facilities or systems. The total cost of these other projects was $8.76 million (including a comprehensive renovation of the existing Woodman Park School at a cost of $7.38 million. Together, school expansion and renovation costs totaled $21.68 million during the period.

3. Projected Facility Improvement Costs

The continuation of a program of comprehensive school system capital improvement is anticipated over the next six years. The capital improvement program currently outlined by the Dover School District includes over $36 million in additional renovation and improvements, the most significant of which would center on Dover High School.

Table 1
Dover Public Schools: Projected Capital Improvement Program

Six-Year Improvement Program for Renovation and Improvement - Dover Public Schools							
Project Description & Projected Cost by Fiscal Year	2009	2010	2011	2012	2013	2014	Total For Planning Period
Horne Elementary School	$4,500,000						$4,500,000
Garrison Elementary School		$5,600,000					$5,600,000
Dover High School			$7,600,000	$7,600,000	$7,600,000		$22,800,000
Regional Career Tech Center						$3,000,000	$3,000,000
Dunaway Artif. Turf					$400,000		$400,000
Total School	$4,500,000	$5,600,000	$7,600,000	$7,600,000	$8,000,000	$3,000,000	$36,300,000

Source: Capital Improvement Program Proposal to City Manager by Dover School District, SAU #1 Business Manager 09-13-2007. Costs eligible for 30% State Building Aid reimbursement. Changes to plan subject to results of comprehensive analysis of operating capacities and future capital needs assessment by consultant (NESDC).

In part, these improvements reflect needs that include accommodating additional enrollment growth. The history of enrollment in the Dover Public Schools is illustrated in Figures 1 and 2 and in Table 2 below. The enrollment totals include tuition pupils from Barrington and Nottingham who attend high school in Dover.

Figure 1

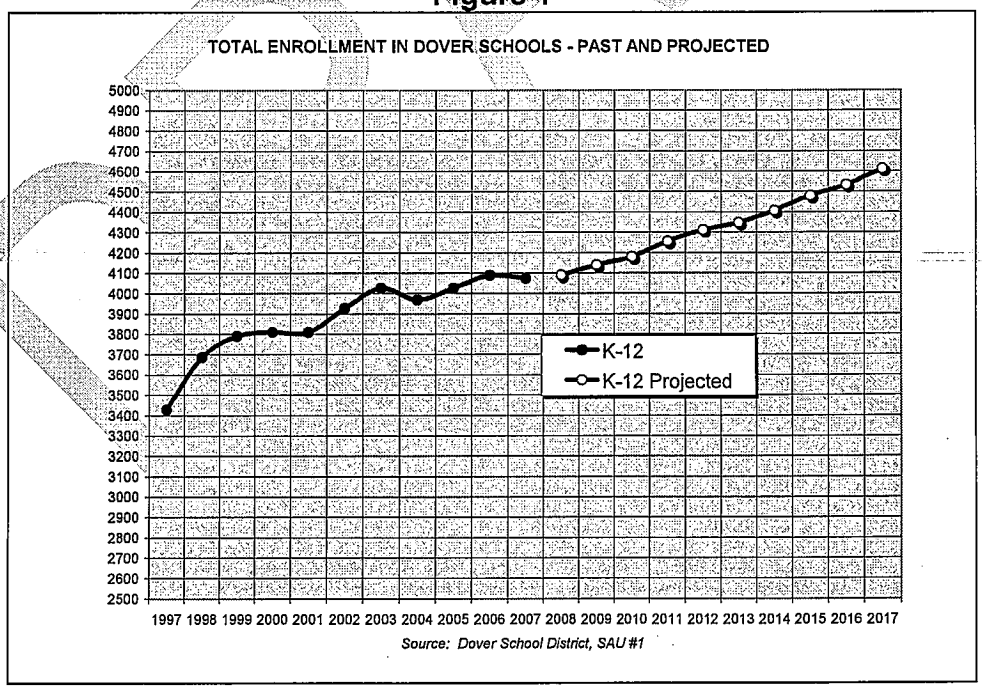
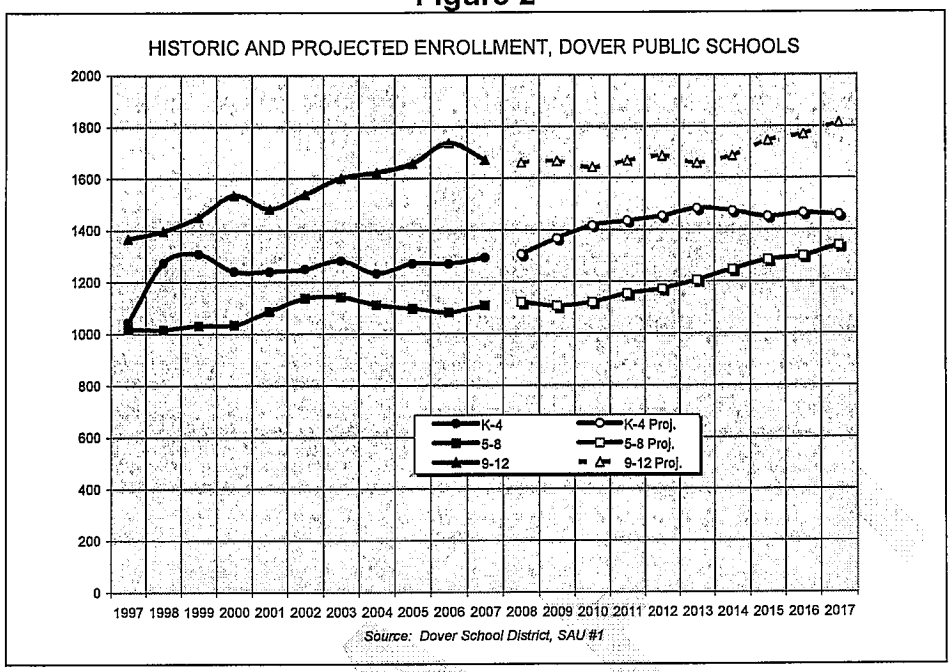


Figure 2



Source: Dover School District, SAU #1

Table 2

Total Enrollment in Dover Public Schools - Past and Projected

	Year	K-4	5-8	9-12	Total
Actual	1997	1,044	1,018	1,367	3,429
	1998	1,274	1,016	1,396	3,686
	1999	1,308	1,032	1,450	3,790
	2000	1,241	1,034	1,535	3,810
	2001	1,240	1,086	1,483	3,809
	2002	1,250	1,137	1,539	3,926
	2003	1,282	1,142	1,602	4,026
	2004	1,233	1,112	1,624	3,969
	2005	1,271	1,097	1,658	4,026
	2006	1,270	1,082	1,737	4,089
	2007	1,294	1,109	1,671	4,074
Projected	2008	1,306	1,122	1,662	4,090
	2009	1,367	1,107	1,666	4,140
	2010	1,417	1,121	1,642	4,180
	2011	1,435	1,154	1,667	4,256
	2012	1,453	1,172	1,686	4,311
	2013	1,483	1,206	1,658	4,347
	2014	1,473	1,247	1,687	4,407
	2015	1,451	1,284	1,745	4,480
	2016	1,464	1,299	1,770	4,533
	2017	1,458	1,340	1,814	4,612

Source: New England School Development Council, Inc.; April 2008 projections provided by Dover School District

4. Floor Area per Pupil Capacity 2008

In the 2002 school impact fee study, the floor area of K-8 facilities provided about 136 square feet of core and classroom space per pupil (capacity), and the high school (grades 9-12) provided 133 square feet per pupil.

Since the inception of the original impact fee, significant additional floor area and capacity has been added (see update of facilities below in Table 3). While the high school, though expanded, is at capacity, the K-8 facilities have been expanded and improved so that current enrollment is about 77% of capacity.

Table 3
Dover Public Schools – Floor Area per Pupil Capacity – 2008

INVENTORY OF DOVER PUBLIC SCHOOLS, FLOOR AREA AND PUPIL CAPACITY - 2008								
School Facilities	Year Built and Expansion Dates	Grades Served	2008 Building Area Gross Sq. Ft.	No. of Stories	2008 Estimated Net Capacity	2008 Gross Sq. Ft./Pupil Capacity	Enrollment as of 10/1/2007	Enrollment as % of Capacity
ELEMENTARY SCHOOLS								
Garrison Elementary	1962, 1967, 1969, 1999, 2005, 2006	K-4	65,938	1	672	98	512	76%
Horne Street Elementary	1957, 1993, 1999, 2002	K-4	48,444	1	512	95	358	70%
Woodman Elementary	1950, 1999, 2007	K-4	105,323	3	594	177	468	79%
Total Elementary			219,705		1,778	124	1,338	75%
MIDDLE SCHOOL								
Dover Middle School	1998, 2003	5-8	175,020	3	1,380	127	1,109	80%
Total Grades K-8		**K-8**	**394,725**		**3,158**	**125**	**2,447**	**77%**
HIGH SCHOOL								
Dover High School	1966, 1989, 1991,1970, 2003	9-12	224,075	3	1,760		1,779	101%
Alternative Education	2002	9-12	7,935	1	35		35	100%
Total High School		**Total 9-12**	**232,010**		**1,795**	**129**	**1,814**	**101%**
Total School System		**K-12**	**626,735**		**4,953**	**127**	**4,261**	**86%**

Based on these updated capacity and floor area estimates, the City's K-8 facilities now provide an average of **125** square feet per pupil capacity (classroom and core facilities) while the estimate for the high school is **129** square feet per pupil capacity. These updated averages are somewhat lower than the assumptions used in 2002. In part, this may be due to the nature of space added as well as improvements to efficiency that often follows from the renovation and construction of new space.

B. Facility Development Cost per Square Foot

The original impact fee established in 2002 estimated the cost of developing school facilities comparable to those in Dover at that time to be $128 per square foot for K- 8 schools, and $150 per square foot for high school space. These costs include construction, furnishings and capital equipment for a combination of classroom space and core facilities. The original estimates were based on general architectural estimates, and prior to the actual construction of new and expanded floor area anticipated at the time.

For the 2008 update, several sources were considered as a means of updating costs to the current year. These included indexing the original estimates to national and State cost indices. National indices used include the Engineering News Record construction index, and time adjustments based on R.S. Means Square Foot Costs 2008.

A third indicator is the NH Department of Education standardized cost per square foot applicable to Strafford County. The State figures are published annually as part of the Department of Education standards for State Building Aid reimbursement. The State uses a maximum floor area standard in combination with an assigned cost per square foot to assign a cost basis for the calculation of State Building Aid. The State cost standard, however, is based solely on the costs of building construction and internal systems; the cost basis does not necessarily reflect the total comprehensive development cost of school facilities.

Table 4 – Facility Development Cost per Square Foot

	2002 Cost/Sq. Ft. Assigned	Sept 2008 ENR Adjusted	Jan 2008 RSM Adjusted	2008 State Std (Bldg Only)	Avg of Three 2008 Indices
Elementary & Middle School	$128	$168	$177	$151	$165
High School	$150	$196	$207	$168	$190

To estimate comparable facility development costs in 2008, the revised impact fee model shows two options: (1) application of the average cost per square foot using the above indices; and (2) a lower cost, estimated using the State of NH Department of Education cost per square foot applied in its building aid standards for Strafford County.

Two of the school facility expansion projects in Dover provide some indication of actual recent construction costs per square foot. The Woodman Park Elementary school expansion (17 classroom addition, excluding renovation of existing space) represented a cost of about $165 per square foot in 2007. The 8-classroom addition to the Dover High School in 2003 represented a cost of about $212 per square foot based on the bonded amount of construction cost. Therefore, the average of the three indices above seems a reasonable approximation of facility development costs per square foot.

C. Resident Enrollment per Housing Unit

The 2002 estimates of resident enrollment per housing unit were developed by the City by linking enrollment by address to property assessment data. The average enrollment factors applied to impact fee assessments in the 2002 report are shown below.

Table 5
Resident Enrollment per Housing Unit – 2002 Estimates

ORIGINAL ENROLLMENT RATIOS DEVELOPED BY CITY - 2001 BASE YEAR FOR 2002 IMPACT FEE					
	Single Family	2 - 3 Family	Apartments	Townhouse	Mobile Homes
Elementary	0.1452	0.0997	0.0489	0.0698	0.1358
Middle	0.1204	0.1084	0.0395	0.0576	0.0528
Combined	0.2656	0.2081	0.0884	0.1274	0.1886
HS	0.1082	0.1008	0.0249	0.0384	0.0679
Total	0.3738	0.3089	0.1133	0.1658	0.2565

To update the enrollment averages, we used the trend in resident enrollment and updated estimates of total households in the City as indices. The base year data (2001) is applied to total households estimated for the City. The enrollment ratios are then indexed forward in each year based on updated estimates of the number of households and the actual counts of enrollment by grade level. (See Table 6).

Table 6
Updated Estimate of Enrollment per Unit - 2007

Estimate of Resident Pupils Per Household - City of Dover NH						
Academic Year Beginning Fall of:	Estimated Households *	Estimate of Resident Pupils Per Household				
		PS-4	5-8	PS-8	9-12	Total PS-12
2000	11,573	0.110	0.089	0.200	0.088	0.287
2001	11,745	0.109	0.092	0.201	0.085	0.286
2002	11,911	0.107	0.095	0.203	0.086	0.289
2003	12,151	0.109	0.094	0.203	0.086	0.289
2004	12,373	0.102	0.090	0.192	0.087	0.279
2005	12,493	0.105	0.088	0.192	0.087	0.280
2006	12,584	0.104	0.086	0.190	0.091	0.281
2007	12,657	0.106	0.088	0.193	0.090	0.283
Ratio 2007 to 2001 (Base Yr)		**97.3%**	**94.8%**	**96.1%**	**105.3%**	**98.9%**

** NHOEP Estimates for 2001-2006; 2007 units added based on number authorized by building permit according to U.S. Census C-40 reports.*

The update estimate indicates that in 2007 enrollment per household was about 96% of the 2001 figure while average high school enrollment per unit was at about 105% of the base year estimate. Overall, average enrollment per unit at all grade levels is nearly 99% of the 2001 estimate. The resulting adjusted enrollment ratios are shown in Table 7 below.

Table 7

ADJUSTED ENROLLMENT RATIOS - 2008 FEE UPDATE					
	Single Family	2 - 3 Family	Apartments	Townhouse	Manufactured Housing (Mobile Home)
Elementary	0.1413	0.0970	0.0476	0.0679	0.1321
Middle	0.1141	0.1027	0.0374	0.0546	0.0500
Total K-8	0.2554	0.1997	0.0850	0.1225	0.1821
HS	0.1140	0.1062	0.0262	0.0404	0.0715
Total	0.3694	0.3059	0.1112	0.1629	0.2536

The updated enrollment ratios result in a slight shift in school facility costs per unit of development. Current enrollment ratios place more of the cost emphasis of capacity impacts on high school capacity costs and somewhat less on K-8 facilities.

D. Credit Allowances for Pre-Existing Needs

Since the inception of the original school impact fee, the City has undertaken a number of school expansion projects, and continues to pay debt service on the original construction of the Dover Middle School. Part of the cost of debt service on each of these projects is related to providing for school capacity needs that were required to satisfy the demands of existing enrollment. Bonded debt relating to replacements, repairs, or costs limited to upgrades of existing space were not included in computing the credit allowances.

The present value of net local tax costs (after State Building Aid) is computed for each of a number of bond issues. The amount credited is based on the proportion of the school capacity already consumed by existing pupils. The revised credit allowances also reflect updated assessed values per housing unit as well as updates to the estimated value of undeveloped residential land per acre. A summary of the credited amounts is shown in Table 8 below.

Table 8
Credit Allowance Calculations for Debt Service
Cost of Capacity Requirements of Base Year (October 2007) Enrollment

Structure Type	Elementary			Middle School			High School			All Schools		
	Past	Future	**Total**	Past	Future	**Total**	Past	Future	**Total**	Past	Future	**Total**
Single Family Detached	$11	$383	**$394**	$91	$853	**$944**	$11	$104	**$115**	$113	$1,340	**$1,453**
Single Family Attached	$10	$234	**$244**	$56	$521	**$577**	$7	$64	**$71**	$73	$819	**$892**
Duplex & 3 Unit Structures	$8	$166	**$174**	$39	$371	**$410**	$5	$45	**$50**	$52	$582	**$634**
Multi-family Structures 4+ Units	$5	$123	**$128**	$29	$273	**$302**	$4	$33	**$37**	$38	$429	**$467**
Manufactured Housing	$5	$101	**$106**	$24	$223	**$247**	$3	$27	**$30**	$32	$351	**$383**

The detailed credit allowance tables in the Appendix show the credit allowance calculations for selected bond issues (those related to the creation of school capacity or its expansion).

E. Updated School Impact Fee For 2008

The revision of the school impact fee calculation based on the updated factors reviewed above produces two options for updating the fee schedule. The first, shown in column A below reflects a cost per square foot for school facilities that is indexed from the 2002 value using the average of three cost indices. The second option in column B is based on a lower cost standard that reflects the NH Department of Education cost standard per square foot for the purpose of computing State Building Aid for Strafford County school facilities.

Table 9 – Options for 2008 Fee Schedule

Type of Structure	**School Fee Per Dwelling Unit**	
	A	**B**
	@ Indexed Cost Per Square Foot	**@ State Building Cost Per Square Foot**
Single Family Detached	$4,194	$3,654
Single Family Attached	$1,570	$1,340
Duplex & 3 Unit Structures	$4,075	$3,618
Multi-family Structures 4+ Units	$1,210	$1,054
Manufactured Housing	$3,475	$3,110

Either fee schedule represents a proportionate assessment for school facilities. The column A schedule is probably more reflective of the comprehensive school development costs associated with recent school development costs in Dover. The column B schedule represents a lower cost per square foot that is based on an estimate of building and systems costs only.

The detailed fee calculation summaries are shown below in Tables 10 and 11. The Appendix following these tables shows the details of credit allowance calculations for selected bond issues.

Table 10
2008 Fee Calculation at Cost per Sq. Ft. Based on Average of Three Cost Indices

2008 IMPACT FEE CALCULATION PER HOUSING UNIT BY STRUCTURE TYPE - DOVER, NEW HAMPSHIRE							School Cost Per Housing Unit @ Indicated $/Sq.Ft. of School Area		
	Public School Enrollment Per Household			Existing Average Sq. Ft./Pupil Capacity			$165	$190	
Structure Type	Elementary And Middle	High School	Total Public Schools	Elementary And Middle	High School	Overall Average	Elementary And Middle	High School	Total Capital Cost Per D.U.
Single Family Detached	0.2554	0.1140	0.3694	125	129	126	$ 5,267	$ 2,800	$ 8,067
Single Family Attached	0.1225	0.0404	0.1629	125	129	126	$ 2,526	$ 992	$ 3,518
Duplex & 3 Unit Structures	0.1997	0.1062	0.3059	125	129	126	$ 4,119	$ 2,608	$ 6,727
Multi-family Structures 4+ Units	0.0850	0.0262	0.1112	125	129	126	$ 1,753	$ 643	$ 2,396
Manufactured Housing	0.1821	0.0715	0.2536	125	129	126	$ 3,756	$ 1,756	$ 5,512

	Local Capital Cost Per Unit			Credit For Debt Service on Facility Capacity Requirements of Base Year Enrollment (2007)			Impact Fee Assessment Per Dwelling Unit
	Local Cost Per Housing Unit (Total Capital Cost Less 30% State Building Aid)						(Local Capital Cost Less Credits)
Structure Type	Elementary And Middle	High School	Total Public Schools	Past Payments	Future Payments	Total Credit	Impact Fee Per Unit:
Single Family Detached	$ 3,687	$ 1,960	$ 5,647	$ (113)	$ (1,340)	$ (1,453)	**$4,194**
Single Family Attached	$ 1,768	$ 694	$ 2,462	$ (73)	$ (819)	$ (892)	**$1,570**
Duplex & 3 Unit Structures	$ 2,883	$ 1,826	$ 4,709	$ (52)	$ (582)	$ (634)	**$4,075**
Multi-family Structures 4+ Units	$ 1,227	$ 450	$ 1,677	$ (38)	$ (429)	$ (467)	**$1,210**
Manufactured Housing	$ 2,629	$ 1,229	$ 3,858	$ (32)	$ (351)	$ (383)	**$3,475**

Table 11

Fee Calculation Using State Building Aid Reimbursement Guideline per Square Foot
(State Cost Guideline is based on Building and Systems Costs Only)

2008 IMPACT FEE CALCULATION PER HOUSING UNIT BY STRUCTURE TYPE - DOVER, NEW HAMPSHIRE							School Cost Per Housing Unit @ Indicated $/Sq.Ft. of School Area		
	Public School Enrollment Per Household			Existing Average Sq. Ft./Pupil Capacity			$151	$168	
Structure Type	Elementary And Middle	High School	Total Public Schools	Elementary And Middle	High School	Overall Average	Elementary And Middle	High School	Total Capital Cost Per D.U.
Single Family Detached	0.2554	0.1140	0.3694	125	129	126	$ 4,820	$ 2,475	$ 7,295
Single Family Attached	0.1225	0.0404	0.1629	125	129	126	$ 2,312	$ 877	$ 3,189
Duplex & 3 Unit Structures	0.1997	0.1062	0.3059	125	129	126	$ 3,769	$ 2,306	$ 6,075
Multi-family Structures 4+ Units	0.0850	0.0262	0.1112	125	129	126	$ 1,604	$ 569	$ 2,173
Manufactured Housing	0.1821	0.0715	0.2536	125	129	126	$ 3,437	$ 1,553	$ 4,990

	Local Capital Cost Per Unit			Credit For Debt Service on Facility Capacity Requirements of Base Year Enrollment (2007)			Impact Fee Assessment Per Dwelling Unit
	Local Cost Per Housing Unit (Total Capital Cost Less 30% State Building Aid)						(Local Capital Cost Less Credits)
Structure Type	Elementary And Middle	High School	Total Public Schools	Past Payments	Future Payments	Total Credit	**Impact Fee Per Unit:**
Single Family Detached	$ 3,374	$ 1,733	$ 5,107	$ (113)	$ (1,340)	$ (1,453)	**$3,654**
Single Family Attached	$ 1,618	$ 614	$ 2,232	$ (73)	$ (819)	$ (892)	**$1,340**
Duplex & 3 Unit Structures	$ 2,638	$ 1,614	$ 4,252	$ (52)	$ (582)	$ (634)	**$3,618**
Multi-family Structures 4+ Units	$ 1,123	$ 398	$ 1,521	$ (38)	$ (429)	$ (467)	**$1,054**
Manufactured Housing	$ 2,406	$ 1,087	$ 3,493	$ (32)	$ (351)	$ (383)	**$3,110**

APPENDIX – CREDIT ALLOWANCE ASSUMPTIONS

A-1

IMPACT FEE CREDIT CALCULATION FOR PROPERTY TAX PAYMENTS
DOVER SCHOOL DISTRICT

Bond: Garrison Elementary School - New Gym/Admin/Classrooms ($2,150,000) June 2005

State Aid To District: 30% of Principal Due on Bonds
Discount Rate: 6%

Fiscal Year	Total Principal Payment	Total Interest Payment	Total Payment	Less State Building Aid at 30% of Principal	Net Debt Service Cost To District	Present Worth Factor	Present Worth Of Past Payment @ 6% Interest
PAST PAYMENTS							
2005	$ -	$ 83,402	$ 83,402	$ -	$ 83,402	1.191	$99,333
2006	$ 108,000	$ 83,402	$ 191,402	$ (32,400)	$ 159,002	1.124	$178,655
2007	$ 108,000	$ 78,002	$ 186,002	$ (32,400)	$ 153,602	1.060	$162,818
					Present Value of Past Payments		$440,806
					Percent of Capacity Utilized as of 2007		76%
					Credited Amount		$335,012
					Net Local Assessed Valuation (Per NH DRA - Oct. 2007)		$2,835,069,000
					Past Payment Credit Per $1000 Land Value		$ 0.12
					Average Land Valuation/Acre: Undeveloped Residential Land		$ 26,000
					Credit Per Acre Raw Land		$ 3.12
					Acres Per Unit for Existing Single Family Detached Home:		1.27
					Past Payment Credit for Single Family Unit		$4
FUTURE PAYMENTS							
2008	$ 108,000	$ 72,602	$ 180,602	$ (32,400)	$ 148,202		
2009	$ 108,000	$ 68,282	$ 176,282	$ (32,400)	$ 143,882		
2010	$ 108,000	$ 65,042	$ 173,042	$ (32,400)	$ 140,642		
2011	$ 108,000	$ 61,802	$ 169,802	$ (32,400)	$ 137,402		
2012	$ 108,000	$ 58,454	$ 166,454	$ (32,400)	$ 134,054		
2013	$ 108,000	$ 54,998	$ 162,998	$ (32,400)	$ 130,598		
2014	$ 108,000	$ 51,434	$ 159,434	$ (32,400)	$ 127,034		
2015	$ 108,000	$ 47,762	$ 155,762	$ (32,400)	$ 123,362		
2016	$ 107,000	$ 43,442	$ 150,442	$ (32,100)	$ 118,342		
2017	$ 107,000	$ 39,162	$ 146,162	$ (32,100)	$ 114,062		
2018	$ 107,000	$ 34,882	$ 141,882	$ (32,100)	$ 109,782		
2019	$ 107,000	$ 30,602	$ 137,602	$ (32,100)	$ 105,502		
2020	$ 107,000	$ 26,322	$ 133,322	$ (32,100)	$ 101,222		
2021	$ 107,000	$ 22,042	$ 129,042	$ (32,100)	$ 96,942		
2022	$ 107,000	$ 17,762	$ 124,762	$ (32,100)	$ 92,662		
2023	$ 107,000	$ 13,376	$ 120,376	$ (32,100)	$ 88,276		
2024	$ 107,000	$ 8,988	$ 115,988	$ (32,100)	$ 83,888		
2025	$ 107,000	$ 4,494	$ 111,494	$ (32,100)	$ 79,394		
Total	$ 2,150,000	$ 966,254	$ 3,116,254	$ (645,000)	$ 2,471,254		

(Final Payment in 2026)

Net Present Value of Future Payments (2008-2025) @ 6% discount rate: $1,315,630
Percent of Capacity Utilized as of 2007: 76%
Credited Amount: $999,879
Net Local Assessed Valuation (Per NH DRA - Oct. 2007): $ 2,835,069,000
Credit per thousand assessed value of completed home: $ 0.35

CREDIT CALCULATION FOR THIS BOND (PER DWELLING UNIT)

	Credit For Past Payments	Assessed Value Per Dwelling Unit	Credit For Future Payments	Total Credits For This Bond
Single Family Detached	$ 4	$ 290,000	$ 102	$ 106
Single Family Attached (Townhouse)	$ 2	$ 177,000	$ 62	$ 64
Duplex and 3 Unit Structures	$ 2	$ 126,000	$ 44	$ 46
Multifamily Structures 4+ Units	$ 1	$ 93,000	$ 33	$ 34
Manufactured Housing	$ 1	$ 76,000	$ 27	$ 28

A-2

CREDIT CALCULATION
IMPACT FEE CREDIT CALCULATION FOR PROPERTY TAX PAYMENTS
DOVER SCHOOL DISTRICT

Bonds: Woodman Park Elementary - 17-Room Addition - $4,805,000 - June 2006

State Aid To District: 30% of Principal Due on Bonds
Discount Rate: 6%

Fiscal Year	Total Principal Payment	Total Interest Payment	Total Payment	Less State Building Aid at 30% of Principal	Net Debt Service Cost To District	Present Worth Factor	Present Worth Of Past Payment @ 6% Interest
PAST PAYMENTS							
2006	$ -	$ 204,850	$ 204,850	$ -	$ 204,850	1.124	$230,169
2007	$ 240,000	$ 204,850	$ 444,850	$ (72,000)	$ 372,850	1.060	$395,221
						Present Value of Past Payments	$625,390
						Percent of Capacity Utilized as of 2007	79%
						Amount Credited	$494,058
						Net Local Assessed Valuation (Per NH DRA - Oct. 2007)	$2,835,069,000
						Past Payment Credit Per $1000 Land Value	$0.17
						Average Land Valuation/Acre: Undeveloped Residential Land	$26,000
						Credit Per Acre Raw Land	$ 4.42
						Acres Per Unit for Existing Single Family Detached Home:	1.27
						Past Payment Credit for Single Family Unit	$6
FUTURE PAYMENTS							
2008	$ 245,000	$ 192,600	$ 437,600	$ (73,500)	$ 364,100		
2009	$ 240,000	$ 182,700	$ 422,700	$ (72,000)	$ 350,700		
2010	$ 240,000	$ 173,100	$ 413,100	$ (72,000)	$ 341,100		
2011	$ 240,000	$ 163,500	$ 403,500	$ (72,000)	$ 331,500		
2012	$ 240,000	$ 153,900	$ 393,900	$ (72,000)	$ 321,900		
2013	$ 240,000	$ 141,900	$ 381,900	$ (72,000)	$ 309,900		
2014	$ 240,000	$ 132,300	$ 372,300	$ (72,000)	$ 300,300		
2015	$ 240,000	$ 120,300	$ 360,300	$ (72,000)	$ 288,300		
2016	$ 240,000	$ 110,100	$ 350,100	$ (72,000)	$ 278,100		
2017	$ 240,000	$ 100,500	$ 340,500	$ (72,000)	$ 268,500		
2018	$ 240,000	$ 90,900	$ 330,900	$ (72,000)	$ 258,900		
2019	$ 240,000	$ 81,300	$ 321,300	$ (72,000)	$ 249,300		
2020	$ 240,000	$ 71,700	$ 311,700	$ (72,000)	$ 239,700		
2021	$ 240,000	$ 61,800	$ 301,800	$ (72,000)	$ 229,800		
2022	$ 240,000	$ 51,600	$ 291,600	$ (72,000)	$ 219,600		
2023	$ 240,000	$ 41,400	$ 281,400	$ (72,000)	$ 209,400		
2024	$ 240,000	$ 31,200	$ 271,200	$ (72,000)	$ 199,200		
2025	$ 240,000	$ 21,000	$ 261,000	$ (72,000)	$ 189,000		
2026	$ 240,000	$ 10,500	$ 250,500	$ (72,000)	$ 178,500		
Total	$ 4,805,000	$ 2,342,000	$ 7,147,000	$ (1,441,500)	$ 5,705,500		

(Final Payment June 2027)

Net Present Value of Future Payments (2008-2026) @ 6% discount rate: $3,206,280
Percent of Capacity Utilized as of 2007 79%
Amount Credited $2,532,961
Net Local Assessed Valuation (Per NH DRA - Oct. 2007) $ 2,835,069,000
Credit per thousand assessed value of completed home: $ 0.89

CREDIT CALCULATION FOR THIS BOND (PER DWELLING UNIT)

	Credit For Past Payments	Assessed Value Per Dwelling Unit	Credit For Future Payments	Total Credits For This Bond
Single Family Detached	$ 6	$ 290,000	$ 258	$ 264
Single Family Attached (Townhouse)	$ 4	$ 177,000	$ 158	$ 162
Duplex and 3 Unit Structures	$ 3	$ 126,000	$ 112	$ 115
Multifamily Structures 4+ Units	$ 2	$ 93,000	$ 83	$ 85
Manufactured Housing	$ 2	$ 76,000	$ 68	$ 70

A-3

CREDIT CALCULATION
IMPACT FEE CREDIT CALCULATION FOR PROPERTY TAX PAYMENTS
DOVER SCHOOL DISTRICT

Bonds: Horne Street School - Two Improvement Bonds $365,000 (2003) and $225,000 (2004)

State Aid To District: 30% of Principal Due on Bonds
Discount Rate: 6%

Fiscal Year	Total Principal Payment	Total Interest Payment	Total Payment	Less State Building Aid at 30% of Principal	Net Debt Service Cost To District	Present Worth Factor	Present Worth Of Past Payment @ 6% Interest
PAST PAYMENTS							
2004	$ -	$ 10,262	$ 10,262	$ -	$ 10,262	1.262	12,956
2005	$ 25,000	$ 18,324	$ 43,324	$ (7,500)	$ 35,824	1.191	42,667
2006	$ 40,000	$ 17,824	$ 57,824	$ (12,000)	$ 45,824	1.124	51,488
2007	$ 40,000	$ 16,800	$ 56,800	$ (12,000)	$ 44,800	1.060	47,488

Present Value of Past Payments	$154,598
Percent of Capacity Utilized as of 2007	70%
Amount Credited	$108,219
Net Local Assessed Valuation (Per NH DRA - Oct. 2007)	$2,835,069,000
Past Payment Credit Per $1000 Land Value	$0.04
Average Land Valuation/Acre: Undeveloped Residential Land	$26,000
Credit Per Acre Raw Land	$ 1.04
Acres Per Unit for Existing Single Family Detached Home:	1.27
Past Payment Credit for Single Family Unit	$1

FUTURE PAYMENTS						
2008	$ 40,000	$ 15,774	$ 55,774	$ (12,000)	$ 43,774	
2009	$ 40,000	$ 14,688	$ 54,688	$ (12,000)	$ 42,688	
2010	$ 40,000	$ 13,538	$ 53,538	$ (12,000)	$ 41,538	
2011	$ 40,000	$ 12,326	$ 52,326	$ (12,000)	$ 40,326	
2012	$ 40,000	$ 11,014	$ 51,014	$ (12,000)	$ 39,014	
2013	$ 40,000	$ 9,664	$ 49,664	$ (12,000)	$ 37,664	
2014	$ 40,000	$ 8,252	$ 48,252	$ (12,000)	$ 36,252	
2015	$ 40,000	$ 6,902	$ 46,902	$ (12,000)	$ 34,902	
2016	$ 40,000	$ 5,502	$ 45,502	$ (12,000)	$ 33,502	
2017	$ 40,000	$ 4,036	$ 44,036	$ (12,000)	$ 32,036	
2018	$ 35,000	$ 2,706	$ 37,706	$ (10,500)	$ 27,206	
2019	$ 35,000	$ 1,336	$ 36,336	$ (10,500)	$ 25,836	
2020	$ 15,000	$ 676	$ 15,676	$ (4,500)	$ 11,176	
Total	$ 590,000	$ 169,624	$ 759,624	$ (177,000)	$ 582,624	

(Final Payment June 2020)

Net Present Value of Future Payments (2008-2020) @ 6% discount rate:	$317,949
Percent of Capacity Utilized as of 2007	70%
Amount Credited	$222,564
Net Local Assessed Valuation (Per NH DRA - Oct. 2007)	$ 2,835,069,000
Credit per thousand assessed value of completed home:	$ 0.08

CREDIT CALCULATION FOR THIS BOND (PER DWELLING UNIT)

	Credit For Past Payments	Assessed Value Per Dwelling Unit	Credit For Future Payments	Total Credits For This Bond
Single Family Detached	$ 1	$ 290,000	$ 23	$ 24
Single Family Attached (Townh	$ 4	$ 177,000	$ 14	$ 18
Duplex and 3 Unit Structures	$ 3	$ 126,000	$ 10	$ 13
Multifamily Structures 4+ Units	$ 2	$ 93,000	$ 7	$ 9
Manufactured Housing	$ 2	$ 76,000	$ 6	$ 8

A-4

CREDIT CALCULATION
IMPACT FEE CREDIT CALCULATION FOR PROPERTY TAX PAYMENTS
DOVER SCHOOL DISTRICT

Bonds: Middle School Construction - 1999 Series C

State Aid To District: 30% of Principal Due on Bonds
Discount Rate: 6%

Fiscal Year	Total Principal Payment	Total Interest Payment	Total Payment	Less State Building Aid at 30% of Principal	Net Debt Service Cost To District	Present Worth Factor	Present Worth Of Past Payment @ 6% Interest
PAST PAYMENTS							
2000	$ 493,171	$ 15,615	$ 508,786	$ (147,951)	$ 360,835	1.594	$575,115
2001	$ 1,165,337	$ 81,827	$ 1,247,165	$ (349,601)	$ 897,563	1.504	$1,349,604
2002	$ 1,171,583	$ 151,115	$ 1,322,698	$ (351,475)	$ 971,223	1.419	$1,377,698
2003	$ 1,108,253	$ 212,357	$ 1,320,610	$ (332,476)	$ 988,134	1.338	$1,322,346
2004	$ 1,047,263	$ 269,885	$ 1,317,148	$ (314,179)	$ 1,002,969	1.262	$1,266,225
2005	$ 992,290	$ 324,883	$ 1,317,173	$ (297,687)	$ 1,019,486	1.191	$1,214,224
2006	$ 939,029	$ 376,519	$ 1,315,548	$ (281,709)	$ 1,033,839	1.124	$1,161,621
2007	$ 890,830	$ 426,305	$ 1,317,135	$ (267,249)	$ 1,049,886	1.060	$1,112,879
						Present Value of Past Payments	$9,379,712
						Percent of Capacity Utilized as of 2007	80%
						Credited Amount	$7,503,770
						Net Local Assessed Valuation (Per NH DRA - Oct. 2007)	$2,835,069,000
						Past Payment Credit Per $1000 Land Value	$ 2.65
						Average Land Valuation/Acre: Undeveloped Residential Land	$ 26,000
						Credit Per Acre Raw Land	$ 68.90
						Acres Per Unit for Existing Single Family Detached Home:	1.27
						Past Payment Credit for Single Family Unit	$88
FUTURE PAYMENTS							
2008	$ 843,876	$ 472,922	$ 1,316,798	$ (253,163)	$ 1,063,635		
2009	$ 798,246	$ 516,289	$ 1,314,535	$ (239,474)	$ 1,075,061		
2010	$ 756,788	$ 558,422	$ 1,315,210	$ (227,036)	$ 1,088,174		
2011	$ 716,302	$ 597,384	$ 1,313,685	$ (214,890)	$ 1,098,795		
2012	$ 668,879	$ 641,081	$ 1,309,960	$ (200,664)	$ 1,109,296		
2013	$ 632,735	$ 676,162	$ 1,308,898	$ (189,821)	$ 1,119,077		
2014	$ 599,659	$ 710,563	$ 1,310,223	$ (179,898)	$ 1,130,325		
2015	$ 566,927	$ 741,390	$ 1,308,318	$ (170,078)	$ 1,138,239		
2016	$ 534,610	$ 768,421	$ 1,303,031	$ (160,383)	$ 1,142,648		
2017	$ 498,096	$ 806,435	$ 1,304,531	$ (149,429)	$ 1,155,102		
2018	$ 466,687	$ 835,969	$ 1,302,656	$ (140,006)	$ 1,162,650		
2019	$ 439,284	$ 857,398	$ 1,296,663	$ (131,779)	$ 1,164,883		
2020	$ 411,201	$ 885,024	$ 1,296,225	$ (123,360)	$ 1,172,865		
Total	$ 15,741,027	$ 10,925,965	$ 26,666,992	$ (4,722,308)	$ 21,944,684		

(Final Payment in 2020)

Net Present Value of Future Payments (2008-2020) @ 6% discount rate:	$9,890,541.54
Percent of Capacity Utilized as of 2007	80%
Credited Amount	$7,912,433
Net Local Assessed Valuation (Per NH DRA - Oct. 2007)	$ 2,835,069,000
Credit per thousand assessed value of completed home:	$ 2.79

CREDIT CALCULATION FOR THIS BOND (PER DWELLING UNIT)

Type of Structure	Credit For Past Payments	Assessed Value Per Dwelling Unit	Credit For Future Payments	Total Credits For This Bond
Single Family Detached	$ 88	$ 290,000	$ 809	$ 897
Single Family Attached (Townhouse)	$ 54	$ 177,000	$ 494	$ 548
Duplex and 3 Unit Structures	$ 38	$ 126,000	$ 352	$ 390
Multifamily Structures 4+ Units	$ 28	$ 93,000	$ 259	$ 287
Manufactured Housing	$ 23	$ 76,000	$ 212	$ 235

A-5

CREDIT CALCULATION
IMPACT FEE CREDIT CALCULATION FOR PROPERTY TAX PAYMENTS
DOVER SCHOOL DISTRICT

Bonds: Middle School Improvement Bond - Two-wing addition - $1,000,000 June 2003

State Aid To District: 30% of Principal Due on Bonds
Discount Rate: 6%

Fiscal Year	Total Principal Payment	Total Interest Payment	Total Payment	Less State Building Aid at 30% of Principal	Net Debt Service Cost To District	Present Worth Factor	Present Worth Of Past Payment @ 6% Interest
PAST PAYMENTS							
2003	0	$ 31,538	$ 31,538	$ -	$ 31,538	1.338	$42,205
2004	$ 50,000	$ 31,538	$ 81,538	$ (15,000)	$ 66,538	1.262	$84,003
2005	$ 50,000	$ 30,534	$ 80,534	$ (15,000)	$ 65,534	1.191	$78,052
2006	$ 50,000	$ 29,538	$ 79,538	$ (15,000)	$ 64,538	1.124	$72,515
2007	$ 50,000	$ 28,538	$ 78,538	$ (15,000)	$ 63,538	1.060	$67,350

Present Value of Past Payments	$344,125
Percent of Capacity Utilized as of 2007	80%
Amount Credited	$275,300
Net Local Assessed Valuation (Per NH DRA - Oct. 2007)	$2,835,069,000
Past Payment Credit Per $1000 Land Value	$0.10
Average Land Valuation/Acre: Undeveloped Residential Land	$26,000
Credit Per Acre Raw Land	$ 2.60
Acres Per Unit for Existing Single Family Detached Home:	1.27
Past Payment Credit for Single Family Unit	$3

FUTURE PAYMENTS						
2008	$ 50,000	$ 27,412	$ 77,412	$ (15,000)	$ 62,412	
2009	$ 50,000	$ 26,162	$ 76,162	$ (15,000)	$ 61,162	
2010	$ 50,000	$ 24,788	$ 74,788	$ (15,000)	$ 59,788	
2011	$ 50,000	$ 23,288	$ 73,288	$ (15,000)	$ 58,288	
2012	$ 50,000	$ 21,788	$ 71,788	$ (15,000)	$ 56,788	
2013	$ 50,000	$ 20,162	$ 70,162	$ (15,000)	$ 55,162	
2014	$ 50,000	$ 18,662	$ 68,662	$ (15,000)	$ 53,662	
2015	$ 50,000	$ 17,062	$ 67,062	$ (15,000)	$ 52,062	
2016	$ 50,000	$ 15,362	$ 65,362	$ (15,000)	$ 50,362	
2017	$ 50,000	$ 13,612	$ 63,612	$ (15,000)	$ 48,612	
2018	$ 50,000	$ 11,800	$ 61,800	$ (15,000)	$ 46,800	
2019	$ 50,000	$ 9,950	$ 59,950	$ (15,000)	$ 44,950	
2020	$ 50,000	$ 8,050	$ 58,050	$ (15,000)	$ 43,050	
2021	$ 50,000	$ 6,050	$ 56,050	$ (15,000)	$ 41,050	
2022	$ 50,000	$ 4,050	$ 54,050	$ (15,000)	$ 39,050	
2023	$ 50,000	$ 2,050	$ 52,050	$ (15,000)	$ 37,050	
Total	$ 1,000,000	$ 401,934	$ 1,401,934	$ (300,000)	$ 1,101,934	

(Final Payment June 2024)

Net Present Value of Future Payments (2008-2020) @ 6% discount rate:	$532,521.97
Percent of Capacity Utilized as of 2007	80%
Amount Credited	$426,018
Net Local Assessed Valuation (Per NH DRA - Oct. 2007)	$ 2,835,069,000
Credit per thousand assessed value of completed home:	$ 0.15

CREDIT CALCULATION FOR THIS BOND (PER DWELLING UNIT)

Type of Structure	Credit For Past Payments	Assessed Value Per Dwelling Unit	Credit For Future Payments	Total Credits For This Bond
Single Family Detached	$ 3	$ 290,000	$ 44	$ 47
Single Family Attached (Townhouse)	$ 2	$ 177,000	$ 27	$ 29
Duplex and 3 Unit Structures	$ 1	$ 126,000	$ 19	$ 20
Multifamily Structures 4+ Units	$ 1	$ 93,000	$ 14	$ 15
Manufactured Housing	$ 1	$ 76,000	$ 11	$ 12

A-6

CREDIT CALCULATION
IMPACT FEE CREDIT CALCULATION FOR PROPERTY TAX PAYMENTS
DOVER SCHOOL DISTRICT

Bonds: High School - 8 Room Addition - 2 Bonds $1,783,000 and $500,000 June 2003

State Aid To District: 30% of Principal Due on Bonds
Discount Rate: 6%

Fiscal Year	Total Principal Payment	Total Interest Payment	Total Payment	Less State Building Aid at 30% of Principal	Net Debt Service Cost To District	Present Worth Factor	Present Worth Of Past Payment @ 6% Interest
PAST PAYMENTS							
2003	$ 119,000	$ 64,714	$ 183,714	$ (35,700)	$ 148,014	1.338	$198,076
2004	$ 154,000	$ 61,144	$ 215,144	$ (46,200)	$ 168,944	1.262	$213,288
2005	$ 154,000	$ 58,064	$ 212,064	$ (46,200)	$ 165,864	1.191	$197,547
2006	$ 154,000	$ 54,984	$ 208,984	$ (46,200)	$ 162,784	1.124	$182,904
2007	$ 154,000	$ 51,904	$ 205,904	$ (46,200)	$ 159,704	1.060	$169,286
					Present Value of Past Payments		$961,101
					Percent of Capacity Utilized as of 2007		100%
					Credited Amount		$961,101
					Net Local Assessed Valuation (Per NH DRA - Oct. 2007)		$2,835,069,000
					Past Payment Credit Per $1000 Land Value		$ 0.34
					Average Land Valuation/Acre: Undeveloped Residential Land		$ 26,000
					Credit Per Acre Raw Land		$ 8.84
					Acres Per Unit for Existing Single Family Detached Home:		1.27
					Past Payment Credit for Single Family Unit		$11
FUTURE PAYMENTS							
2008	$ 154,000	$ 48,438	$ 202,438	$ (46,200)	$ 156,238		
2009	$ 154,000	$ 44,590	$ 198,590	$ (46,200)	$ 152,390		
2010	$ 154,000	$ 40,356	$ 194,356	$ (46,200)	$ 148,156		
2011	$ 154,000	$ 35,736	$ 189,736	$ (46,200)	$ 143,536		
2012	$ 154,000	$ 31,116	$ 185,116	$ (46,200)	$ 138,916		
2013	$ 154,000	$ 26,110	$ 180,110	$ (46,200)	$ 133,910		
2014	$ 149,000	$ 21,490	$ 170,490	$ (44,700)	$ 125,790		
2015	$ 149,000	$ 16,722	$ 165,722	$ (44,700)	$ 121,022		
2016	$ 148,000	$ 11,656	$ 159,656	$ (44,400)	$ 115,256		
2017	$ 148,000	$ 6,476	$ 154,476	$ (44,400)	$ 110,076		
2018	$ 30,000	$ 1,110	$ 31,110	$ (9,000)	$ 22,110		
Total	$ 2,283,000	$ 574,610	$ 2,857,610	$ (684,900)	$ 2,172,710		

(Final Payment June 2018)

Net Present Value of Future Payments (2008-2017) @ 6% discount rate: $1,020,238.09
Percent of Capacity Utilized as of 2007: 100%
Credited Amount: $1,020,238
Net Local Assessed Valuation (Per NH DRA - Oct. 2007): $ 2,835,069,000
Credit per thousand assessed value of completed home: $ 0.36

CREDIT CALCULATION FOR THIS BOND (PER DWELLING UNIT)

Type of Structure	Credit For Past Payments	Assessed Value Per Dwelling Unit	Credit For Future Payments	Total Credits For This Bond
Single Family Detached	$ 11	$ 290,000	$ 104	$ 115
Single Family Attached (Townhouse)	$ 7	$ 177,000	$ 64	$ 71
Duplex and 3 Unit Structures	$ 5	$ 126,000	$ 45	$ 50
Multifamily Structures 4+ Units	$ 4	$ 93,000	$ 33	$ 37
Manufactured Housing	$ 3	$ 76,000	$ 27	$ 30

Account # P08-25 Date Received: 6/11/08
Amount Pd. 1497.36 Time Received:

RECEIVED
JUN 11 2008

CITY OF DOVER
SUBDIVISION APPLICATION

Applicant (s) Name KPRP/165 Henry Law Ave Phone 817-0345

Applicant (s) Address 28 Meadow Lane, Rochester, NH 03867

Signature of Applicant(s) [signature]

Land Owner's Name(s) *(if different from applicant)* Same

Land Owner's Address (es) _____

Signature of Land Owner _____

Area of entire tract 4.46 acres, 194,401 square feet

Area being subdivided _____ acres, _____ square feet

Proposed number of lots 9

Zoning District R-12 Assessor's Map 21 Lot Nos. 5

Special District(s) ___ Flood Hazard Zone _____ Conservation Zone ____ Other _____

Development Data

Construction of Homes:
1. Number of dwelling units 9 2. Number of buildings 9

Construction of Apartments:
1. Number of dwelling units _____ 2. Number of buildings _____

Construction of non-residential units: Yes ____ No X, Explain _____

Professional Certification

Preparer of Plat Christopher R. Berry, Berry Surveying & Engineering David A. Berry
Phone #: 332-2863 Profession Licensed Land Survey / Professional Engineer

CITY OF DOVER PLANNING DEPARTMENT
SUBDIVISION PLAN CHECKLIST

This review checklist is intended to assist the applicant in the planning process of preparing a Subdivision Application for Planning Board action. This completed checklist should be included in the Subdivision Plan application.

The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all subdivision requirements. Please refer to the Subdivision Regulations for full details.

APPLICANT: **KPRP/165 Henry Law Ave LLC**

PROJECT TITLE: __Beacon Circle_____

PROPERTY LOCATION: **165 Henry Law Ave**

DATE OF PREAPPLICATION CONFERENCE: _____

	Required?		
	Yes	No	Provided
1. Completed Application form w/checklist	x		x
2. Payment of review fees	x		x
3. List of abutters	x		x
4. Fifteen copies of subdivision plan w/scale of not less than 1"=50' or 1"=100' for larger subdivisions. Plans that are drawn using a CAD system must meet City of Dover CAD drawing standards. Plans shall contain the following items as appropriate:	x		x
Location map at 1"= 1 ,000' scale, w/3000' radius	x		x
Scale	x		x
Date, title, north arrow	x		x
Proposed subdivision name and location	x		x
Name & address of owners, applicants; signature & stamp of NH licensed land surveyor and/or engineer	x		x
Map & lot numbers for existing & proposed lots as assigned by Tax Assessor	x		x
Zoning District boundaries, including any special or overlay districts	x		x
Location of Conservation District areas		x	
Names of all abutting property owners	x		x
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	x		x
Location and widths of existing and proposed easements and right of ways	x		x
Location and widths of existing and proposed sidewalks		x	
Existing and proposed property lines with dimensions and bearings tied into the City of Dover's Geographic Information System coordinate system	x		x
Existing and proposed lot areas in square feet	x		x

CITY OF DOVER PLANNING DEPARTMENT
SUBDIVISION PLAN CHECKLIST

	Required?		
	Yes	**No**	**Provided**
Existing and proposed topographic information at two foot intervals	x		x
Location of existing buildings and structures	x		x
Location, material and size of existing and proposed permanent monuments	x		x
Location of all land offered for dedication for public use or land to be held in common by owners of the subdivision		x	
Minimum building line setbacks on all lots	x		x
Existing and propose storm drainage system, including the size of lines catch basins and culverts	X		X
Storm water/drainage analysis	x		x
Existing and proposed water lines and fire hydrants	x		x
Existing and proposed sewer lines	x		x
Existing and proposed street lights	x		x
Existing and proposed electrical, cable TV and natural gas lines	x		x
Existing and proposed septic system, including test pit locations and and NHDES subdivision permit number		x	
Location of Flood Hazard Zone	x		x
Location of all bodies of water and watercourses	x		x
Soil types	x		x
Location of wetlands and buffers	x		x
Proposed street numbers for all lots and structures			
5. Construction Detail Sheets shall contain the following information:			
Profiles showing existing and proposed elevations along the center line of proposed streets and within 100' of intersections with existing streets	x x		x x
Profiles showing the locations and a typical cross-section detail of the street	x		x
Location of street trees, streetlighting standards and street signs	x		x
Location, size and invert elevations of existing and proposed sanitary sewers, storm water drains and fire hydrants	x		x
Location and size of all water, gas and other underground utilities	x		x
6. Additional information if appropriated			
Traffic impact analysis	x		x
Waste water quantity & composition figures	x		x
Hydrogeologic study if located in Groundwater Protection Zone		x	
Report on potential pollutants to air, water and land from proposed site usage	x		x
Ground and/or aerial photos of site and immediate area	x		x
Depict test boring locations and groundwater elevations	x		x
Depict percent slope as required	x		x
Depict existing contours up to 100 ft. beyong project limits	x		x
Written narrative description of proposed subdivision project, including * purpose/proposed use * scope of operation * impact on area or City in general (May be in note on plan)	x		x

CITY OF DOVER PLANNING DEPARTMENT
SUBDIVISION PLAN CHECKLIST

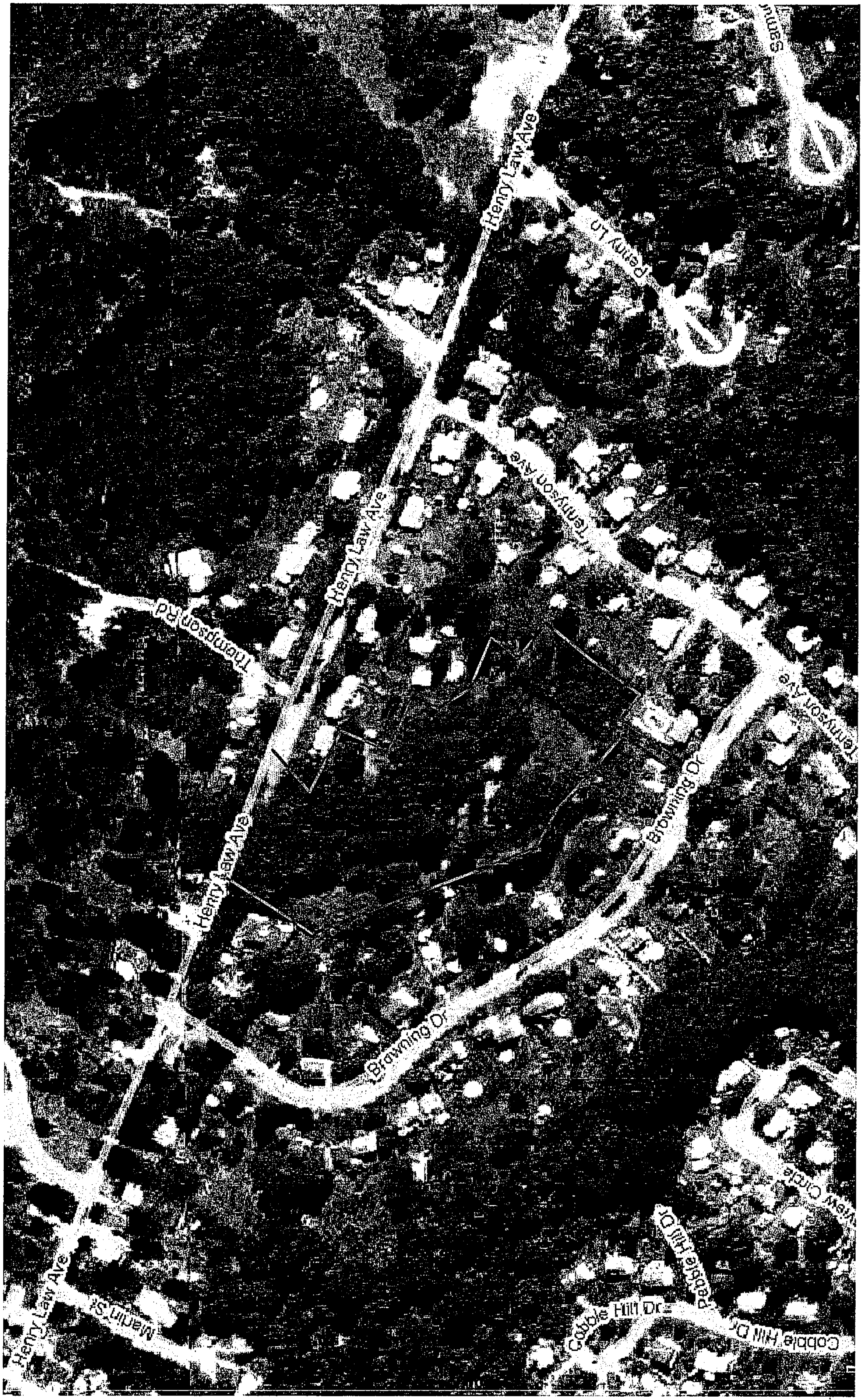
	Required?		
	Yes	**No**	**Provided**
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required			

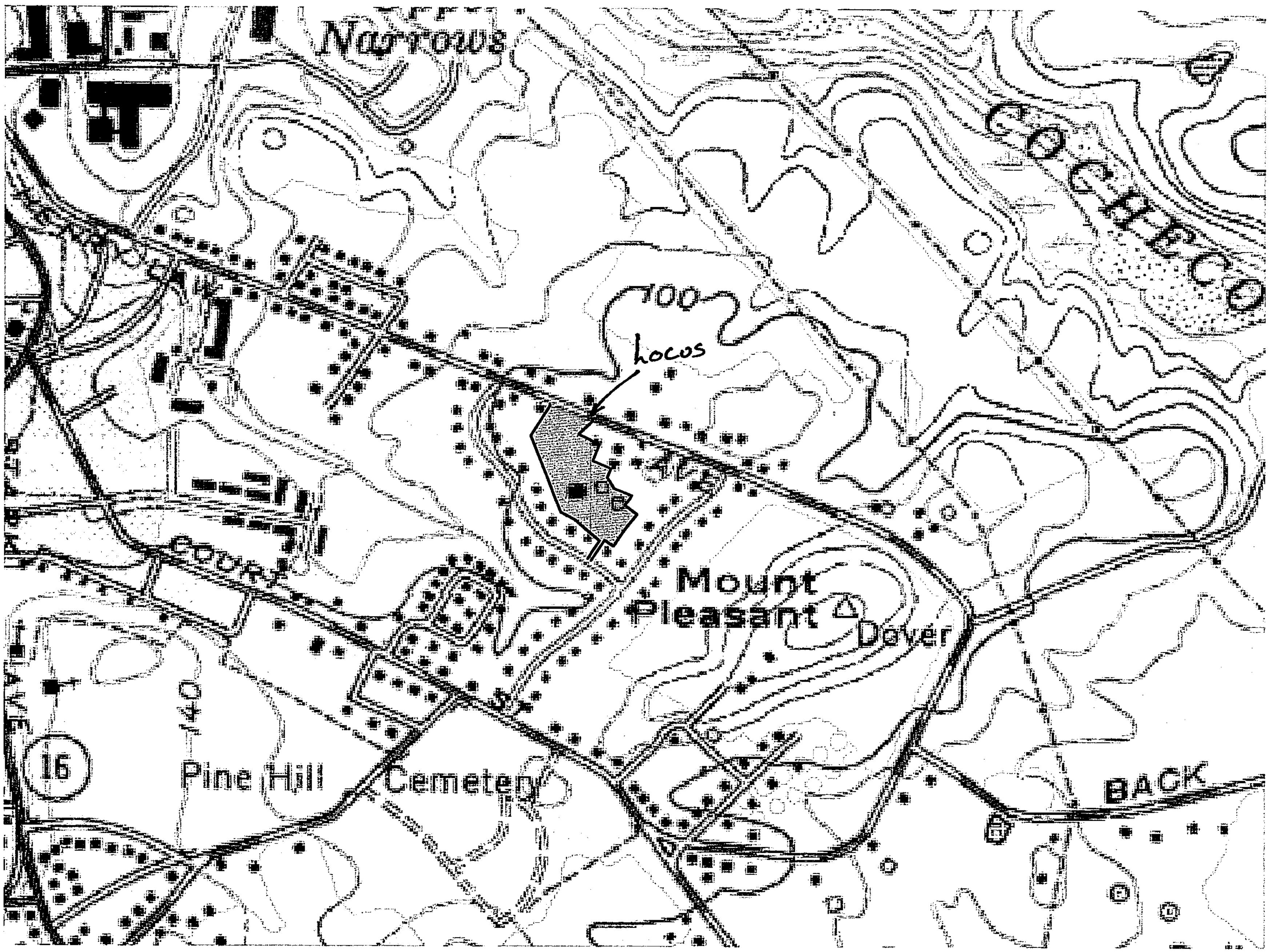
REVIEWED BY: _____ DATE _____

APPLICANT'S SIGNATURE: _____ AGENT.

APPLICANT RECEIVED COPY OF THIS REVIEW CHECKLIST? YES ✓ NO _____

REMARKS:


Henry Law Ave
Penny Ln
Tennyson Ave
Henry Law Ave
Thompson Rd
Tennyson Ave
Browning Dr
Henry Law Ave
Browning Dr
Henry Law Ave
Martin St
Cobble Hill Dr
Pebble Hill Dr
Cobble Hill Dr


Narrows
COCHECO
100
locus
Mount
Pleasant
Dover
COURT
140
16
Pine Hill
Cemetery
BACK

ABUTTERS LIST

Major Subdivision

Applicant: KPRP/ 165 Henry Law Ave. LLC

Mailing Address: P.O. Box 459, Portsmouth, NH 03801
Project Address: 165 Henry Law Ave., Dover, NH 03820

Tax Map-Lot #	Name	Address	Town
Owner of Project Lot:			
21-5	KPRP/ 165 Henry Law Ave. LLC	P.O. Box 459	Portsmouth, NH 03801
Legal Abutters to Project Lot:			
21-5B	Shawn Murphy	167 Henry Law Ave.	Dover, NH 03820
21-5C	Donald & June Meserve	175 Henry Law Ave.	Dover, NH 03820
21-5E	Keefe Living Trust Francis & Shirley Keefe	169 Henry Law Ave.	Dover, NH 03820
21-59	Paul & Julie Dureau	24 Browning Drive	Dover, NH 03820
21-62	Robert & Judith Livingston	20 Tennyson Ave.	Dover, NH 03820
21-64	Timothy & Tami McFadden	22 Tennyson Ave.	Dover, NH 03820
21-66	Anne Berry	24 Tennyson Ave.	Dover, NH 03820
21-78	Joseph & Beatrice Sweeney	163 Henry Law Ave.	Dover, NH 03820
21-80	William & Patricia Dublin	4 Browning Drive	Dover, NH 03820
21-82	Bruce & Judith Mizzau	8 Browning Drive	Dover, NH 03820
21-83	Joe Lugalla & Makungu Lugalla-Sapience	10 Browning Drive	Dover, NH 03820
21-84	James & Noi Vachon	12 Browning Drive	Dover, NH 03820
21-85	Martha McGivney-Foss	14 Browning Drive	Dover, NH 03820
21-86	Travis & Heather Cook	16 Browning Drive	Dover, NH 03820
21-87	Marvin & Catherine Mack	18 Browning Drive	Dover, NH 03820
21-88	Donald Cantrell & Helen Fitzgerald	20 Browning Drive	Dover, NH 03820
21-89	Kenneth Lauter & Esther Tsai	22 Browning Drive	Dover, NH 03820

K-2C	Thomas & Rose Shevenell	166 Henry Law Ave.	Dover, NH 03820
K-2D	William & Margaret Kohut	166A Henry Law Ave.	Dover, NH 03820
K-3	Jeffrey Gauthier & Nancy Perdoni	162 Henry Law Ave.	Dover, NH 03820

Project Wetland Scientist:

Marc. E. Jacobs	P.O. Box 417	Greenland, NH 03840

Project Surveyor and/or Engineer:

Berry Surveying & Engineering	148 2nd Crown Point Rd.	Barrington, N.H. 03825

Amount Paid $337.68

Account # P08.25

Date Received 8/26/08

Time Received

RECEIVED AUG 26 2008

$16 PD cash Archive fee

CONDITIONAL USE APPLICATION
CITY OF DOVER PLANNING BOARD

GENERAL INFORMATION

Date: 8-26-08 Telephone #: 817-0345

Name of Applicant: KDRP 165 Henry Law Ave L.L.C

Address of Applicant: 28 Meadow Lane, Rochester, NH 03867

Signature of Applicant

Name of Property Owner: Same.

Address of Property Owner:

Signature of Property Owner

Address of Property Being Developed: 165 Henry Law Ave.

Assessor's Map #: 21 Lot #: 5

Zoning District: R-12

2. APPLICANT'S PROPOSED ACTIONS (check where applicable)

___ Activity in Dover Conservation District – Describe activity Proposing to remove 2,219 Sq Ft. of 20% slope. Slope is man made, located to the rear of a Garage on site.

___ Impact to Dover Wetlands – Describe impact

___ Other

3. THE FOLLOWING PERMITS HAVE BEEN OBTAINED AND ARE ATTACHED

___ Army Corps of Engineers
___ New Hampshire Wetlands Board
___ Other

ABUTTERS LIST

Major Subdivision

Applicant: KPRP/ 165 Henry Law Ave. LLC

Mailing Address: P.O. Box 459, Portsmouth, NH 03801
Project Address: 165 Henry Law Ave., Dover, NH 03820

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21-83	Joe Lugalla & Makungu Lugalla-Sapience	10 Browning Drive	Dover, NH 03820
21-84	James & Noi Vachon	12 Browning Drive	Dover, NH 03820
21-85	Martha McGivney-Foss	14 Browning Drive	Dover, NH 03820
21-86	Travis & Heather Cook	16 Browning Drive	Dover, NH 03820
21-87	Marvin & Catherine Mack	18 Browning Drive	Dover, NH 03820
21-88	Donald Cantrell & Helen Fitzgerald	20 Browning Drive	Dover, NH 03820
21-89	Kenneth Lauter & Esther Tsai	22 Browning Drive	Dover, NH 03820

21-90	Michael & Janine Gilbert	25 Browning Drive	Dover, NH 03820
K-2C	Thomas & Rose Shevenell	166 Henry Law Ave.	Dover, NH 03820
K-2D	William & Margaret Kohut	166A Henry Law Ave.	Dover, NH 03820
K-3	Jeffrey Gauthier & Nancy Perdoni	162 Henry Law Ave.	Dover, NH 03820

Project Wetland Scientist:

Marc. E. Jacobs	P.O. Box 417	Greenland, NH 03840

Project Surveyor and/or Engineer:

Berry Surveying & Engineering	148 2nd Crown Point Rd.	Barrington, N.H. 03825

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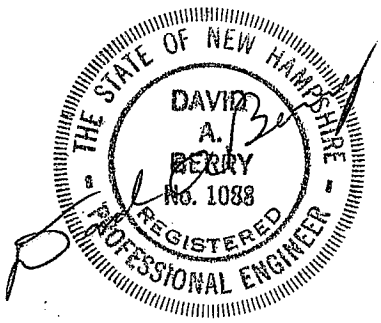
SITE DESIGN
SEPTIC SYSTEM DESIGN
WETLANDS PERMITTING
SHORELAND PROTECTION PERMITTING

"Beacon Circle"

Trip End Analysis
&
Distribution Analysis
KPRP 165 Henry Law Ave
165 Henry Law Ave
Dover, NH

By
Berry Surveying & Engineering
148 Second Crown Point Road
Barrington, NH 03820



Completed June 5, 2005
Revised:

148 Second Crown Point Road, Barrington, NH 03825 **Phone** (603) 332-2863 **Fax** (603) 335-4623
Crberry@metrocast.net BerrySurveying.com

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SHORELAND PROTECTION PERMITTING

City of Dover Planning Department
Attn: Bruce Woodruff
288 Central Ave.
Dover, NH 03820
603-516-6008

RE: Trip End Analysis & Trip Distribution
165 Henry Law Ave
Dover, NH
KPRP 165 Henry Law Ave LLC

Mr. Woodruff & City Engineer David White

The following are the references and assumptions used for estimating the trips to and from the site, as well as the distribution of trips from East to West. Please note that due to such low traffic generation that there was no warrant testing completed. The level of service was also not tested at the proposed entrance since the only service interruptions would occur to the interior of the proposed project. Level of service was not tested or provided at any outside intersections, given the low generation and distance from nearest intersection.

Existing Traffic:

Existing pass by trips were retrieved from an onsite counting session preformed by Berry Surveying & Engineering at Nantucket Court. Nantucket Court was chosen for both pass by counts and turning percentages, given the close proximity and exact site code as the proposed site. On site counting was done for a period of one (1) week, April 21, 2008 – April 25, 2008. AM Peak hours (6:45AM-9:15AM) and PM Peak hours (3:45PM-6:15PM) were the extent of the counting session, assuming that the peak hours of the local street fall within those parameters. This assumption was derived given the residential nature of Henry Law Ave. The morning and afternoon peak hours were derived from the data set within the three and one half hour (3.5) session taken, using consecutive peak 15 minute intervals.

Government planning data was not used within this analysis given its dated nature. However comparisons were made between Berry Surveying & Engineering's counting session and Strafford Regional Planning Commission (SRPC) data for analysis. Synopsis can be found later in the report.

Equations Used for Analysis:

Growth rate was calculated using the exponential function $A=P(1 + r/n)^{nt}$.

Where: A= amount of trips after t years
P= existing pass by trips
r= growth rate of X%
n= number of times the compounding takes place
t= number of years growth is applied.

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The Proposal:

KPRP 165 Henry Law Ave LLC is proposing a small very low volume urban residential street, to service 9 new, single family residence. The road is proposed to be six hundred and fifty feet (650') which included alignment around the proposed cul-de-sac.

A 24 foot two lane traveled way is proposed to move traffic through the proposed site. A closed drainage system with sloped granite curbing is proposed. The Cul-de-sac was designed using the Geometric Design of Highways and Streets, *(to be further referenced as the "Green Book")* dead end street design found in chapter 5. The outside edge of pavement radius is designed at forty seven feet (47') using the WB50 design vehicle. The pavement width was shortened to twenty feet (20'), because most safety vehicles do not transporting trailers. Geometry was chosen using the "Geometric Design of Very Low-Volume Local Roads given the trip / volume generation found below.

Trip Generation:

The 7th Edition ITE Trip Generation Manual was used to determine the volume of trips, as well as the percentage of entrance to exit traffic experienced at the AM / PM peak hour generator.
The Single Family Detached Housing was used for this analysis. (Code 210)

Code 210 Peak Hour of Adjacent Street Traffic Between 7AM and 9AM per Unit.

Number of Units	Average Rate	Total Trips	25% Entering	75% Exiting
9 Units	0.75	7T	2T	5T

Code 210 Peak Hour of Adjacent Street Traffic Between 4 and 6 PM per Unit.

Number of Units	Average Rate	Total Trips	63% Entering	37% Exiting
9 Units	1.01	9T	6T	3T

Trip Distribution:

A localized analysis was done to determine the Left / Right (East / West) turning distribution Single Family Detached Housing. On April 21, 2008-April 25, 2008 traffic was analyzed at Nantucket Court, an identical land use code and similar in size, for the purpose of monitoring turning distribution in and out of the site. The AM Peak as well as the PM Peak was counted so as to properly distribute the trip generation within the peak hour time period.

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The following are the findings of this study.
(Average over 5days) (Total trips counted within two and a half hour window for the 5Days)
AM Peak Hour @ Nantucket Court Code 210

Number of Units	Trips from East	Trips from West	Trips Exiting East	Trips Exiting West
7	7T 46.7% of Total In	8T 53.3% of Total In	16T 57% Total Exiting	12T 43% Total Exiting

PM Peak Hour @ Nantucket Court Code 210

Number of Units	Trips from East	Trips from West	Trips Exiting East	Trips Exiting West
7	18T 46% of Total In	21T 54% of Total In	13T 42% Total Exiting	18T 58% Total Exiting

This percentage of distribution was then applied to the trip generation of the proposed code 210

Distribution: *(Trips from Page 2 x % generated above)*
Distribution of 2, AM Peak Trips Entering. *(Please note sample is extremely small)*
46.7x 2 Trips = 1T Entering from East
53.3% x 2 Trips = 1T Entering from West
Distribution of 5, AM Peak Trips Exiting
57% x 5 Trips = 3T Turning East
43% x 5 Trips = 2T Turning West
Distribution of 6, PM Peak Trips Entering
46% x 6 Trips = 3T Entering from East
54% x 6 Trips = 3T Entering from West
Distribution of 3, PM Peak Trips Exiting
42% x 3 Trips = 1 Trip Turning East
58% x 3 Trips = 2 Trips Turning West.

Trip End Conclusion:
Peak AM Complete Site:
1 Trip Entering from East
1 Trip Entering from West
3 Trips Exiting East (Right)
2 Trips Exiting West (Left)
Peak PM Complete Site:
3 Trips Entering from East
3 Trips Entering from West
1 Trip Exiting East (Right)
2 Trips Exiting West (Left)
Please find graphical representation, with included pass by trips.

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Total Daily Volume:

The total (weekday) daily volume is estimated to be 86T. This represents a 4.75% increase to the existing pass by traffic of 1811VPD. *(Extrapolated from 2005 at a 3% growth rate)*

Code 210 Average Rate on a Weekday 9.57 trips per dwelling unit

9.57T/U x 9U = 86.T

It is assumed that vehicles are intending to move to and from this site, and therefore all calculated trips are added to pass-by traffic. Land Use Code 210 is not conducive to pass-by interest.

Pass By Traffic Analysis:

During the localized counting session pass by traffic was counted in addition turning movements during the typical AM & PM Peak Hours. The 5 day average AM Peak Hour (7-9) pass by traffic consisted of 45T West and 44T East. The 5 day average PM Peak Hour (4-6) pass by traffic consisted of 96T West and 100T East. It should be noted that the peak AM hour of collector road Henry Law Ave, is not the same peak hour as the proposed Land Use Code. This can be seen on provided 2005 Governmental data by SRPC Site Code #82125059. It is clear that the AM Peak hour is closer to 9AM-12AM, with some early overlap into hour 8. The same is true of the PM Peak hour, which is closer to 3PM-5PM, with some delayed overlap into the 6th hour on Fridays only.

The reason for the AM off general peak, might be attributed to a moderate amount of elderly housing in the vicinity of Henry Law Ave. At this time we have no plausible explanation for the off PM peak.

Peak Total Vehicles Per Day in 2005, taken from the SRPC data was 1757VPD. With even a modest 3% increase applied to the next 23 years *(starting in 2005)* there will be close to 3500VPD traveling along Henry Law Ave.

Existing Infrastructure:

The existing width of Henry Law Ave is twenty for feet (24') edge of pavement to edge of pavement with a posted speed of only 30MPH. Vertical and Horizontal alignment was not analyzed outside of three hundred feet (300') in the East and West direction of the project site. Safety records were not analyzed within this area.

Trip End Conclusion:

There will be a very small amount of increase in daily volume to this particular local road, and a near in-calculable amount of generator peak traffic. The peak hour generated from Land Use Code 210 is at a different time then the peak hour of the local road Henry Law Ave.

Within Chapter 5 of the "Green Book" exhibit 5-5 illustrates that pavement width of twenty four feet (24') is satisfactory for over 2000VPD at the existing posted speed. There will be no diminishment of service within the existing infrastructure, and therefore we feel there are no off site improvements required for this project.

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Known Future Upgrades:

It should be noted that Henry Law Ave is currently under reconstruction. This includes utility upgrades, the addition of a sidewalk to the East bound lane, and finished top coat.

Within the Dover Master plan it is alleged that Henry Law Ave will become one way out of the Central Ave intersection. This would further the idea that level of service at the closest local/collector intersection will not be diminished. However, traffic relief will be placed on surrounding local streets such as Hanson Street, George Street and Browning Drive.

Site Distance & Driveway Placement:

The driveway was placed to face an abutting garage. Any other position would potentially place exiting headlights into abutting windows. It offers close to 300' of separation from Browning Drive, and allows for over 250' of site distance in both directions. The existing posted speed limit within the design area is 30MPH. The ASSHTO Geometric Design manual recommends approximately 200' of stopping site distance for this design speed.

We feel the driveway is placed in the safest place with the most advantageous site distance.

There are no design constraints compromising the placement of the proposed curb cut. There is one (1) utility pole which lands in the middle of the proposed driveway. This is proposed to be relocated during construction

In conclusion the proposed site generates and adds minimally to the existing pass-by traffic. At this time there is no need or warrant for any off site traffic improvements.

Attachments:

"A" Google Map
"B" SRPC 2005 Traffic Data
"C" Graphical Analysis

Thank you for your time and consideration on this matter. Please feel free to contact me at any time.

David A. Berry

Christopher R. Berry
SIT 567
Project Manager
Engineering Tech.

David A. Berry
LLS, PE
General Manager.

148 Second Crown Point Road, Barrington, NH 03825 **Phone** (603) 332-2863 **Fax** (603) 335-4623
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Strafford Regional Planning Commission
2 Ridge St, Suite 4
Dover, NH 03820

Site Code: 82125059
Station ID:
Henry Law Ave Dover
East of Niles St

Start	11-Jul-05		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	Eastbou	Westbo	Eastbou	Westbo	Eastbou	Westbo	Eastbou	Westbo	Eastbou	Westbo	Eastbou	Westbo	Eastbou	Westbo	Eastbou	Westbo
12:00 AM	*	*	10	6	4	4	1	2	9	7	10	6	8	4	7	5
01:00	*	*	4	2	1	6	1	2	2	2	10	6	5	3	4	4
02:00	*	*	0	2	0	2	2	2	2	0	0	1	1	1	1	1
03:00	*	*	1	1	1	0	2	1	0	0	2	2	2	0	1	1
04:00	*	*	2	0	1	1	3	2	1	2	1	1	2	2	2	1
05:00	*	*	5	9	5	9	4	13	4	12	2	8	0	2	3	9
06:00	*	*	23	31	19	24	20	28	17	23	8	14	3	13	15	22
07:00	*	*	26	37	23	47	36	27	26	43	19	30	7	21	23	34
08:00	*	*	53	42	43	**51**	46	**63**	49	41	26	46	21	31	40	46
09:00	*	*	34	38	**45**	46	40	42	37	52	50	34	28	28	39	40
10:00	*	*	**54**	**59**	35	40	29	38	**51**	**56**	40	47	38	**46**	41	**48**
11:00	*	*	46	39	40	42	**56**	50	46	47	**58**	**57**	**39**	39	**48**	46
12:00 PM	56	45	60	47	73	66	50	64	70	42	**54**	**56**	42	42	58	52
01:00	64	58	58	60	46	45	57	57	51	71	44	55	**56**	**58**	54	58
02:00	44	51	38	74	48	28	54	45	51	48	54	48	40	48	47	49
03:00	**84**	**78**	62	55	59	66	64	**88**	53	64	38	39	38	45	57	62
04:00	73	59	71	68	**83**	83	**80**	82	71	56	41	41	40	45	66	62
05:00	77	68	**86**	**102**	79	**88**	66	68	**95**	58	40	42	35	47	**68**	**68**
06:00	52	71	70	55	53	84	61	81	75	**82**	32	39	35	38	54	64
07:00	38	46	59	51	45	52	50	44	58	65	28	39	32	35	44	47
08:00	56	32	41	45	43	45	51	26	52	45	32	27	17	22	42	35
09:00	38	26	36	13	20	28	34	24	34	25	30	24	24	22	31	23
10:00	24	22	15	10	22	17	14	17	12	24	18	22	16	9	17	17
11:00	7	8	8	6	10	5	11	7	16	10	18	12	9	3	11	7
Lane	613	564	862	852	798	879	832	873	882	875	655	696	538	604	773	801
Day	1177		1714		1677		1705		1757		1351		1142		1574	
AM Peak			10:00	10:00	09:00	08:00	11:00	08:00	10:00	10:00	11:00	11:00	11:00	10:00	11:00	10:00
Volume			54	59	45	51	56	63	51	56	58	57	39	46	48	48
PM Peak	15:00	15:00	17:00	17:00	16:00	17:00	16:00	15:00	17:00	18:00	12:00	12:00	13:00	13:00	17:00	17:00
Volume	84	78	86	102	83	88	80	88	95	82	54	56	56	58	68	68

Strafford Regional Planning Commission
2 Ridge St, Suite 4
Dover, NH 03820

Site Code: 82125059
Station ID:
Henry Law Ave Dover
East of Niles St

Start Time	18-Jul-05 Eastbou	18-Jul-05 Westbo	Tue Eastbou	Tue Westbo	Wed Eastbou	Wed Westbo	Thu Eastbou	Thu Westbo	Fri Eastbou	Fri Westbo	Sat Eastbou	Sat Westbo	Sun Eastbou	Sun Westbo	Week Average Eastbou	Week Average Westbo
12:00 AM	7	0	*	*	*	*	*	*	*	*	*	*	*	*	7	0
01:00	1	1	*	*	*	*	*	*	*	*	*	*	*	*	1	1
02:00	1	2	*	*	*	*	*	*	*	*	*	*	*	*	1	2
03:00	0	2	*	*	*	*	*	*	*	*	*	*	*	*	0	2
04:00	2	0	*	*	*	*	*	*	*	*	*	*	*	*	2	0
05:00	7	4	*	*	*	*	*	*	*	*	*	*	*	*	7	4
06:00	16	32	*	*	*	*	*	*	*	*	*	*	*	*	16	32
07:00	26	35	*	*	*	*	*	*	*	*	*	*	*	*	26	35
08:00	**51**	**45**	*	*	*	*	*	*	*	*	*	*	*	*	**51**	**45**
09:00	37	44	*	*	*	*	*	*	*	*	*	*	*	*	37	44
10:00	31	27	*	*	*	*	*	*	*	*	*	*	*	*	31	27
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12:00 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lane Day	179 371	192	0 0	0	0 0	0	0 0	0	0 0	0	0 0	0	0 0	0	179 371	192
AM Peak	08:00	08:00													08:00	08:00
Volume	51	45													51	45
PM Peak																
Volume																
Comb. Total	1548		1714		1677		1705		1757		1351		1142		1945	
ADT	ADT 1,697		AADT 1,697													


Washington Street
Hale Street
Academy Street
9
George St.
Hanson Street
Cocheco Court
Wallingford Street
Henry Law Avenue
Nile Street
108
Boyle Street
Union Street
Union Drive
Browning Drive
Tennyson Avenue
Elm Street
South Pine Street
Pebble Hill Drive
Locust Street
Central Avenue
Locke Street
Court Street
© 2008 Tele Atlas
Google
Pointer 43° 11' 25.20" N 70° 52' 06.91" W elev 82 ft Streaming 100%
Eye alt 4229 ft

TECHNICAL REVIEW COMMITTEE NOTES
KPRP 165 HENRY LAW AVE. LLC
HENRY LAW SUBDIVISION (P08-25)
THURSDAY JUNE 26, 2008

PRESENT: Christopher Parker, Steve Bird, Marn Speidel, Eric Hagman, Tom Clark

OTHERS: Linda Merullo, Marcia Colbath, Chris Berry

It will be a nine lot, single family, cul-de-sac subdivision. 12,000+ sq. ft. lots with 100+ ft frontage.

Police Dept.

1. A "no outlet" sign should be included with the Stop sign and Street sign.
2. Utility pole relocation required.

Fire Dept.

No other issues

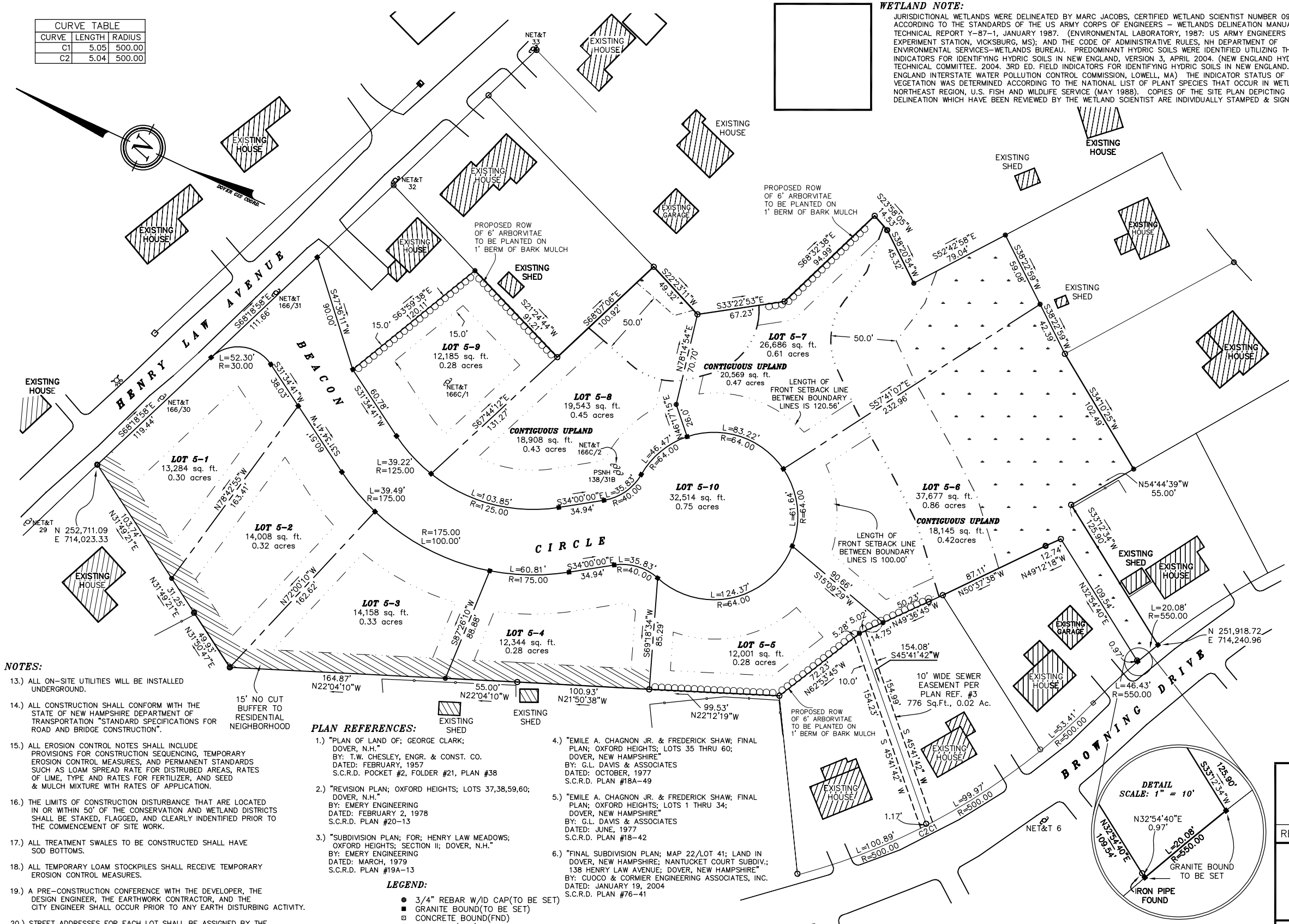
Planning

1. Include the existing condition sheet in plan set
2. Add the abutter across Browning Ave. - Map 21 Lot 90.
3. Note the correct address.
4. Add the plan number (P08-25) to the cover sheet and title block.
5. Implement the Planning Board changes.
6. Keep coordinating with Dave White on the Henry Law Ave construction.
7. Need deed language for notice of no cut areas.
8. Recreation contribution to Maglaras Park.
9. Provide sight distances for Henry Law Ave.
10. Identify the 20% slopes on the topography plan and the area to be altered.
11. One of the four abutters will have deeded cul-de-sac island maintenance.
12. The sidewalk should be concrete.
13. Move the hydrant location.
14. The original application needs the owners' signature.
15. Neighborhood meeting is recommended.
16. Check the outfall to wetlands to see if a Wetlands permit is needed.
17. Need a Conditional Use Permit, it needs to go to the Conservation Commission.

City Engineer not present so applicant was encouraged to meet with him separately to review issues

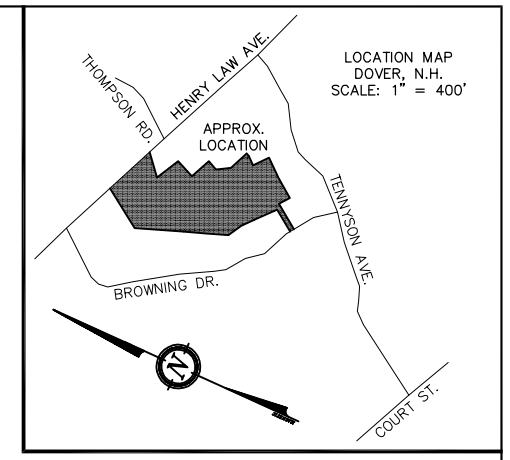
Parker stated the drainage is an important step because we want the changes done before meeting with the Conservation Commission.

CURVE TABLE		
CURVE	LENGTH	RADIUS
C1	5.05	500.00
C2	5.04	500.00



WETLAND NOTE:

JURISDICTIONAL WETLANDS WERE DELINEATED BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST NUMBER 090, ACCORDING TO THE STANDARDS OF THE US ARMY CORPS OF ENGINEERS – WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1, JANUARY 1987. (ENVIRONMENTAL LABORATORY, 1987: US ARMY ENGINEERS WATERWAYS EXPERIMENT STATION, VICKSBURG, MS); AND THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES–WETLANDS BUREAU. PREDOMINANT HYDRIC SOILS WERE IDENTIFIED UTILIZING THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 3, APRIL 2004. (NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2004. 3RD ED. FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA.) THE INDICATOR STATUS OF HYDROPHYTIC VEGETATION WAS DETERMINED ACCORDING TO THE NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS: NORTHEAST REGION, U.S. FISH AND WILDLIFE SERVICE (MAY 1988). COPIES OF THE SITE PLAN DEPICTING THE WETLAND DELINEATION WHICH HAVE BEEN REVIEWED BY THE WETLAND SCIENTIST ARE INDIVIDUALLY STAMPED & SIGNED.



NOTES:

1.) OWNER: KPRP/165 HENRY LAW AVENUE, LLC.
28 MEADOW LANE
ROCHESTER, NH 03867

2.) TAX MAP 21, LOT 5

3.) LOT AREA: 194,401 Sq.Ft., 4.46 Ac.

4.) S.C.R.D. BOOK 3606, PAGE 257

5.) ZONING: R-12
MINIMUM LOT SIZE: 12,000 Sq.Ft.
MINIMUM FRONTAGE: 100'
MINIMUM SETBACKS:
FRONT ~ 30'
SIDE & REAR ~ 15'
MAXIMUM LOT COVERAGE: 30%

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY #330145, MAP# – 33017C0330D, DATED: MAY 17, 2005.

7.) PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING ON JANUARY 25, 2008, WITH AN ERROR OF 1 IN 24,935.

8.) ALL APPLICABLE RIGHT-OF-WAY, CONSERVATION, SLOPE, CONSTRUCTION, POWERLINE, CROSS TRAVEL, OR OTHER EASEMENTS SHALL BE REFERENCED IN A NOTE.

9.) FINAL PLANS OF THE SUBDIVISION SHALL BE SUBMITTED ON A REPRODUCIBLE MYLAR MEDIUM AND IN A DIGITAL .DXF FORMAT ON DISK TO THE CITY OF DOVER PLANNING OFFICE UPON APPROVAL OF THE PROJECT.

10.) EACH LOT CONTAINS A MINIMUM OF 12,000 Sq.Ft. OF CONTIGUOUS NON-WETLAND AREA.

11.) EACH LOT WILL BE SERVICED BY MUNICIPAL WATER AND MUNICIPAL SEWER.

12.) CONSTRUCTION OPERATION HOURS M-F 7AM-7PM SAT 8AM-6PM

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NOTES:

13.) ALL ON-SITE UTILITIES WILL BE INSTALLED UNDERGROUND.

14.) ALL CONSTRUCTION SHALL CONFORM WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION".

15.) ALL EROSION CONTROL NOTES SHALL INCLUDE PROVISIONS FOR CONSTRUCTION SEQUENCING, TEMPORARY EROSION CONTROL MEASURES, AND PERMANENT STANDARDS SUCH AS LOAM SPREAD RATE FOR DISTRUBED AREAS, RATES OF LIME, TYPE AND RATES FOR FERTILIZER, AND SEED & MULCH MIXTURE WITH RATES OF APPLICATION.

16.) THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN 50' OF THE CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED, AND CLEARLY INDENTIFIED PRIOR TO THE COMMENCEMENT OF SITE WORK.

17.) ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.

18.) ALL TEMPORARY LOAM STOCKPILES SHALL RECEIVE TEMPORARY EROSION CONTROL MEASURES.

19.) A PRE-CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR, AND THE CITY ENGINEER SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY.

20.) STREET ADDRESSES FOR EACH LOT SHALL BE ASSIGNED BY THE BUILDING INSPECTOR AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.

21.) THE PROPOSED USE FOR THE SITE IS SINGLE FAMILY RESIDENTIAL.

22.) AS-BUILD PLANS OF THE SITE SHALL BE SUBMITTED ON A REPRODUCIBLE MYLAR, AND IN A DIGITAL .DXF FORMAT ON A DISK TO THE CITY OF DOVER ENGINEER'S OFFICE UPON COMPLETION OF THE PROJECT. AS-BUILT PLANS SHALL BE PREPARED AND CERTIFIED CORRECT BY AN L.L.S. OR A P.E.

23.) THE CITY OF DOVER GIS SYSTEM WAS USED TO DETERMINE POSITION AND ORIENTATION. SEE PLAN REF. #6

24.) VERTICAL DATUM BASED ON APPROXIMATE USGS ELEVATIONS.

PLAN REFERENCES:

1.) "PLAN OF LAND OF; GEORGE CLARK; DOVER, N.H."
BY: T.W. CHESLEY, ENGR. & CONST. CO.
DATED: FEBRUARY, 1957
S.C.R.D. POCKET #2, FOLDER #21, PLAN #38

2.) "REVISION PLAN; OXFORD HEIGHTS; LOTS 37,38,59,60; DOVER, N.H."
BY: EMERY ENGINEERING
DATED: FEBRUARY 2, 1978
S.C.R.D. PLAN #20-13

3.) "SUBDIVISION PLAN; FOR; HENRY LAW MEADOWS; OXFORD HEIGHTS; SECTION II; DOVER, N.H."
BY: EMERY ENGINEERING
DATED: MARCH, 1979
S.C.R.D. PLAN #19A-13

4.) "EMILE A. CHAGNON JR. & FREDERICK SHAW; FINAL PLAN; OXFORD HEIGHTS; LOTS 35 THRU 60; DOVER, NEW HAMPSHIRE"
BY: G.L. DAVIS & ASSOCIATES
DATED: OCTOBER, 1977
S.C.R.D. PLAN #18A-49

5.) "EMILE A. CHAGNON JR. & FREDERICK SHAW; FINAL PLAN; OXFORD HEIGHTS; LOTS 1 THRU 34; DOVER, NEW HAMPSHIRE"
BY: G.L. DAVIS & ASSOCIATES
DATED: JUNE, 1977
S.C.R.D. PLAN #18-42

6.) "FINAL SUBDIVISION PLAN; MAP 22/LOT 41; LAND IN DOVER, NEW HAMPSHIRE; NANTUCKET COURT SUBDIV.; 138 HENRY LAW AVENUE; DOVER, NEW HAMPSHIRE"
BY: CUOCO & CORMIER ENGINEERING ASSOCIATES, INC.
DATED: JANUARY 19, 2004
S.C.R.D. PLAN #76-41

LEGEND:

- 3/4" REBAR W/ID CAP(TO BE SET)
- GRANITE BOUND(TO BE SET)
- CONCRETE BOUND(FND)
- IRON PIPE(FND)
- T-BAR STEEL STAKE(FND)
- REBAR(FND)
- 4" CONCRETE POST(FND)
- RAILROAD SPIKE(FND)
- DRILL BIT(FND)
- UTILITY POLE
- PROPOSED BOUNDARY LINE
- BUILDING SETBACK LINE
- EDGE OF JURISDICTIONAL WETLANDS
- 50' BUFFER LINE TO WETLANDS
- EXISTING WOOD STOCKADE FENCE
- EXISTING CHAIN LINK FENCE

I CERTIFY THAT THIS PLAT EXCEEDS THE MINIMUM REQUIREMENT FOR ACCURACY AND COMPLETENESS OF THE STATE OF N.H. AND OF THE CITY OF DOVER. – 1:10,000 –

DAVID A. BERRY LLS 328 DATE

SUBDIVISION

P 08-25

REVISION	DATE	DESCRIPTION
#1	8-12-08	REVISED PER TRC

SUBDIVISION PLAN
LAND OF
KPRP 165 HENRY LAW AVE LLC
165 HENRY LAW AVENUE
DOVER, N.H.
TAX MAP 21, LOT 5

STATE OF NEW HAMPSHIRE No. 328 DAVID A. BERRY LICENSED LAND SURVEYOR SIGNATURE

BERRY SURVEYING & ENGINEERING
148 SECOND CROWN POINT RD.
BARRINGTON, N.H. 332-2863

SCALE : 1 IN. EQUALS 40 FT.
DATE : MAY 27, 2008
FILE NO. : DB 2007 – 168