I. Executive Summary

The Town of Belmont retained the services of Gannett Fleming, Inc. to provide planning and engineering services for a feasibility study for a new Public Works Facility to house all Department of Public Works (DPW) Divisions including Administration, Cemetery, Highway, Parks and Facilities, and Water. The objective of the study was to develop a space needs assessment and evaluate potential building alternatives at the Highway and Water yards located at 37 C Street and 35 Woodland Street. The study included inspecting existing facilities, identifying deficiencies, interviewing DPW staff to identify the current and future needs, meeting with neighbors to identify neighborhood issues, developing conceptual alternatives for a new consolidated Public Works Facility, and preparing cost estimates for the two most advantageous potential facility locations.

The following is a brief discussion of the results of the feasibility study:

Existing Facilities Operational Analysis

Gannett Fleming performed an operational analysis of the existing DPW facilities to determine functional inadequacies and space limitations of the existing buildings. Several major deficiencies were observed at the DPW facilities which directly impact DPW operations and the efficiency of service that the DPW is able to provide to the Town. The following is a brief list of some of the major deficiencies:

- Lack of a central location impacting operations and resulting in increased facility maintenance costs and utility costs.
- Lack of office space to properly perform daily administrative activities and efficiently serve the public.
- Overcrowded and inadequate Central Fleet Maintenance space. DPW employees are required to operate in poorly ventilated spaces that do not meet current standards.
- Inadequate and inefficient heating and ventilation in Central Fleet Maintenance and vehicle storage areas resulting in unhealthy work conditions for the DPW employees.
- Lack of interior vehicle storage space requiring a portion of the fleet to be stored outdoors and/or stored in stacked parking arrangements. These impact response times in the winter, result in unnecessary exposure of the Town vehicles to harsh winter conditions, and accelerate deterioration of equipment.
- All facilities do not meet current Americans with Disabilities Act (ADA) accessibility requirements.
- All sanitary facilities do not meet current plumbing code.
- Inadequate personnel facilities including lockers, showers, toilet facilities.
- Inadequate fire protection, electrical, and HVAC systems.
- Inadequate facility and site security.

For a complete list of deficiencies identified by Gannett Fleming as well as deficiencies

identified in the 2002 Facilities Audit Report prepared by Edwards and Kelcey, refer to Section II of the report.

Space Needs Assessment

Gannett Fleming performed a comprehensive space needs assessment to identify the current and future needs of the DPW. This space needs assessment included interviewing key DPW personnel from each division to develop an understanding of the day-to-day operations which must be consolidated into the new Public Works Facility. The data obtained from the interviews, combined with the data obtained from the operational analysis, was used to develop a Space Needs Summary table which identified each space and its associated functional space requirements. This table was then utilized to develop individual room part plans illustrating minimum interior space envelope requirements for vehicles, equipment, and personnel. Each part plan identified all room requirements including desks, tables, file cabinets, chairs, shelves, vehicles, plows, and equipment. Each part plan was reviewed with the DPW in detail to confirm the space needs and to identify potential space reductions which would not impact DPW operations. The result of this detailed review was an overall initial reduction in space of approximately 2,000 square feet. The following is a summary of the space needs assessment to meet the current and future needs of the DPW:

Table 1
Space Needs

SPACE DESCRIPTION	**SIZE**
Administrative Offices / Office Support Areas	7,066 SF
Employee Facilities	3,527 SF
Division Work Shops	8,492 SF
Central Fleet Maintenance	9,169 SF
Vehicle Wash Area	1,610 SF
Vehicle / Equipment / Material Storage	47,000 SF
TOTAL:	**76,864 SF**

In order to determine if the needs are consistent with today's standards for Public Works Facilities, Gannett Fleming compared the results of the Belmont DPW space needs assessment to Gannett Fleming's in-house *Department of Public Works Space Needs Guidelines*. These guidelines were developed utilizing historic data from past DPW space needs assessments completed for similar communities in Massachusetts within the last five (5) years. The following is a summary of the recommended needs based on these guidelines:

Table 2
Space Needs Utilizing Gannett Fleming
DPW Space Needs Guidelines

SPACE DESCRIPTION	**SIZE**
Administrative Offices / Office Support Areas	7,068 SF
Employee Facilities	5,166 SF
Division Work Shops & Central Fleet Maintenance	18,525 SF
Vehicle / Equipment /Material Storage	46,144 SF
Vehicle Wash Area / Other Support Spaces	3,060 SF
TOTAL:	**79,963 SF**

The results of this analysis show that the Belmont DPW space needs are within 4% of the Space Needs Guidelines for similar Massachusetts DPW facilities.

Neighborhood Information Meetings

Gannett Fleming and the DPW conducted a total of three (3) informational public meetings with the neighbors to identify neighborhood issues associated with the project. The first two meetings were held at the start of the project to obtain neighborhood input prior to developing the space needs and conceptual alternatives. Input from these meetings were used to develop Building and Site Alternative Goals to be used in developing concepts which meet the needs of the DPW as well as attempt to address the concerns or recommendations of the neighbors.

A third informational public meeting was held upon completing the initial building and site alternatives. The building and site alternative goals were presented to the neighbors along with four (4) conceptual site plans. The advantages and disadvantages of each alternative were presented to the neighbors and additional public input was gathered for incorporation into the final alternatives.

In general, the neighbors were very pleased that the DPW solicited their input during the early stages of the project and they recognized the project as an opportunity to improve the site, protect the environment, and improve the overall appearance of the neighborhood.

Conceptual Building & Site Alternatives

Utilizing the space needs assessment and the Building and Site Alternatives Goals established for the project, Gannett Fleming began developing conceptual building and site

alternatives. The development of these alternatives consisted of developing conceptual building arrangements and locating the building arrangements within the available limits of the site. The conceptual building arrangements were developed by utilizing the results of the space needs assessment to develop "Block Building Plans". These Block Plans were separated into the major space categories for the new public works facility as follows:

- Administration
- Employee Facilities (lunch room, locker room facilities, supervisor offices)
- Work Shops
- Fleet Maintenance
- Vehicle and Equipment Storage
- Wash Bay

The configuration and size of each building block was developed by piecing together the room part plans including maintaining the necessary space adjacencies identified during the space needs assessment. Utilizing the part plans to set the size and shape of each building block allowed the conceptual site alternatives to be easily converted into architectural floor plans without requiring major adjustments to the preferred conceptual layouts.

Utilizing the Block Building Plans, Gannett Fleming initially developed eleven (11) conceptual alternatives for the site. The advantages and disadvantages for each alternative were identified and reviewed at a meeting with the DPW. Based on input obtained at this meeting, and subsequent meetings, the alternatives were modified to incorporate the most advantageous components from each of the alternatives. A total of twenty-two (22) alternatives were created for the site. Alternative No. 15 and Alternative No. 22 were, subsequently selected as the preferred alternatives and were used as the basis for developing the conceptual cost estimates.

Conceptual Cost Estimates

An initial conceptual cost estimate has been prepared for the construction of the proposed Public Works Facility as shown in the preferred alternatives. Costs have been prepared for the following components:

- Construction of new pre-engineered metal buildings with select masonry finishes
- Site improvements, including storm water management improvements and demolition and removal of the existing buildings
- Professional service fees
- Municipal administrative costs
- Contingencies for unanticipated costs

The estimated cost for new building construction and site improvements are based on costs

of similar construction for which bid prices are available, supplemented by cost data obtained from published sources. It is assumed that the project will be publicly bid and prices are based on current 2006 dollars. The prices will need to be adjusted for inflation as follows:

- 10% for 2007
- 6% for 2008
- 5% for each year after 2008

The following is a summary of the Total Project Costs:

Building Cost:	$11,906,000
Site Costs:	$2,041,000
Demolition:	$228,000
Equipment:	$340,000
Support Structures:	$475,000
Contractor General Conditions:	$375,000
Design Contingency (5%):	$768,000
Subtotal:	$16,133,000
Construction Contingency (10%):	$1,613,000
Town Administrative Costs:	$2,544,000
PROJECT TOTAL:	$20,290,000

This estimate includes a design contingency line item of 5% to encompass design adjustments including the potential use of sustainable design components. Sustainable or green building design includes energy and water efficient buildings as well as low impact site development. There are five areas of sustainable design that could be incorporated into the project including site, water efficiency, energy performance, materials, and indoor environmental quality. Through the use of these green building design components, the project could include a site and buildings that are cost effective and environmentally friendly to the occupants of the buildings and the surrounding community.

The building cost of $11,906,000 is equivalent to $150 per square foot as detailed in the detailed cost estimate. Gannett Fleming has designed several public works and maintenance facility projects over the past five (5) years which have been constructed. For comparison purposes the following is a record of the building costs per square foot for each of these projects illustrating the trend of construction pricing for similar facilities:

Project	Year Constructed	Building Bid Price (Cost / SF)
City of Taunton DPW	1998	$85
Town of Dennis DPW	2000	$95
Town of Stoughton DPW	2002	$99
Town of Chatham DPW	2004	$109
Town of Westhampton Highway Garage	2004	$110
Town of Bedford DPW	2004	$135 [1]
CCRTA Maintenance Facility	2006	$185 [2]

[1] Building consisted of deep foundation (piles) and structural foundations which increases the building cost per square foot

[2] Project did not include a vehicle storage garage which is less expensive and would reduce the cost per square foot

Conclusions

Due to the current inadequate and inefficient facilities, a new consolidated DPW facility is required to meet the current and future needs of the Belmont DPW. Based on the comprehensive space needs assessment, the size of the facility should be in the range of 76,000 to 80,000 square feet. The total project cost of a facility of this size is approximately $20 million. This new facility would address all current deficiencies at the existing DPW and would result in improved DPW operations, efficient work flow, safer working environment for Town employees, protection of the environment, protection of town equipment, and improvements to the adjacent neighborhood.

II. Space Needs Assessment

Gannett Fleming prepared a space needs assessment to identify the current and future needs of the Belmont DPW. The assessment included performing a site operational analysis for the C Street and Woodland Street facilities, Cemetery facilities, and Parks and Facilities needs near the skating rink and conducting interviews with key DPW staff.

Operational Analysis

The operational analysis consisted of performing existing facilities inspections and an operational analysis of the existing facilities to assess current DPW operations associated with providing services to the Town. This analysis was used to identify current responsibilities of the DPW and to determine functional inadequacies and space limitations of the existing buildings.

The following is a list of the programs which currently fall under the supervision of the DPW:

- Public Works Administration
- Cemetery Maintenance
- Street Maintenance
- Sanitary Sewer Maintenance
- Stormwater Maintenance
- Central Fleet Maintenance
- Forestry
- Delta's and Grounds
- Solid Waste and Recycling
- Parks and Facilities
- Water Administration
- Water Maintenance

Several major deficiencies were observed at the existing DPW facilities currently utilized to support these programs. These deficiencies directly impact DPW operations and the efficiency of service that the DPW is able to provide to the Town. The following is a summary of the major deficiencies noted:

- Lack of a central location impacting operations and resulting in increased facility maintenance costs and utility costs.
- Lack of office space to properly perform daily administrative activities and efficiently serve the public.
- Overcrowded and inadequate Central Fleet Maintenance space. DPW employees are required to operate in poorly ventilated spaces that do not meet current standards.
- Inadequate and inefficient heating and ventilation in Central Fleet Maintenance and vehicle storage areas resulting in unhealthy work conditions for the DPW employees.
- Lack of interior vehicle storage space requiring a portion of the fleet to be stored

outdoors and/or stored in stacked parking arrangements. These impact response times in the winter, result in unnecessary exposure of the Town vehicles to harsh winter conditions, and accelerate deterioration of equipment.

- All facilities do not meet current Americans with Disabilities Act (ADA) accessibility requirements.
- All sanitary facilities do not meet current plumbing code.
- Inadequate personnel facilities including lockers, showers, toilet facilities.
- Inadequate fire protection, electrical, and HVAC systems.
- Inadequate facility and site security.
- Inadequate material storage areas.
- Deteriorated buildings requiring continued investment in repairs.

In addition to the above major deficiencies observed by Gannett Fleming, a separate independent DPW facilities audit was completed in 2002 by Edwards and Kelcey which performed detailed inspections of the existing facilities and demonstrated that it would cost just as much to repair the existing facilities as it would to replace them in kind. The following is a partial list of some of the deficiencies identified in this report:

- No accessible route to main entrance
- Severe cracking in floor slab
- Single pane windows require replacement
- Non ADA compliant interior doors
- Non ADA compliant office areas
- Non ADA compliant toilet facilities
- Non code compliant Fire / Life Safety wall separations
- Inadequate interior ventilation and non code compliant ventilation
- Boiler has exceed useful life expectancy
- Inadequate coverage for fire alarm indicating devices
- Non code compliant electrical components
- Inadequate emergency and egress lighting

For a complete list of the more than one-hundred and thirty (130) deficiencies noted for the existing DPW facilities, refer to the September 16, 2002 Town of Belmont Facilities Audit report prepared by Edwards and Kelcey.

A copy of the Existing Conditions Photograph Analysis has been included as **Attachment A** to this report.

Staff Interviews

The interviews focused on the function of each division which would be impacted by the consolidation of the DPW into a single facility. Interviews were conducted utilizing a standard interview questionnaire developed by Gannett Fleming for the purpose of identifying current and future needs as well as identifying any existing space deficiencies which must be addressed. Interviews were conducted on November 03, 2005 and November 04, 2005 with the following personnel:

- Peter Castanino, DPW Director
- Michael Santoro, Highway Division Director / Assistant DPW Director
- Richard Bemis, Highway Operations Manager
- Robert Gardiner, Cemetery Superintendent
- John McDonough, Cemetery Foreman
- Joseph Uriciuolo, Parks & Facilities Maintenance Superintendent
- Francis Sartori, Parks & Facilities Maintenance Foreman
- Gerard Schultz, Water Superintendent
- Michael Bishop, Water Assistant Superintendent

The information obtained by these interviews provided detailed accounts of space deficiencies in the existing facilities which affect day to day operations. The results of the interviews have been included as **Attachment B** of this report.

Space Needs / Room Part Plans

The data obtained from the operational analysis and interviews were compiled and analyzed by Gannett Fleming. The analysis consisted of individually identifying the space needs for the operations of each DPW function by developing Room Part Plans for all spaces including administration, shop space, vehicle maintenance, storage of supplies and vehicles, and yard space. These space requirements were then recorded in a space allocation program. A copy of the Space Allocation Program and Room Part Plans have been included as **Attachment C** of this report. The following, Table 1, is a summary of the space needs assessment. The recommended facility size to meet both current and future needs is 76,864 SF.

Table 1 - Space Needs

SPACE DESCRIPTION	**SIZE**
Administrative Offices / Office Support Areas	7,066 SF
Employee Facilities	3,527 SF
Division Work Shops	8,492 SF
Central Fleet Maintenance	9,169 SF
Vehicle Wash Area	1,610 SF
Vehicle / Equipment / Material Storage	47,000 SF
TOTAL:	**76,864 SF**

The results of the space needs assessment where then compared to Gannett Fleming's in-house *Department of Public Works Space Needs Guidelines*. These guidelines were developed utilizing historic data from past DPW space needs assessments completed for similar communities in Massachusetts within the last five (5) years. The guidelines provide a recommended amount of square footage per person, per division, and per vehicle. The following is a summary of the recommended needs based on these guidelines:

Administration: 589 square feet per administration employee. Typical spaces within this area may include:

- DPW administrative offices
- Reception area
- Conference rooms
- Copy/file/mail area
- Active and archive storage
- Lunch/break room
- Toilet facilities
- Utility areas

Employee Facilities: 126 square feet per work force employee. Typical spaces within this area may include:

- Work force lunch room
- Locker/shower/toilet facilities
- Snow fighting / dispatch office areas
- Training areas
- Utility rooms

Shops: 3,705 square feet per division. Typical spaces within this area may include:

- Vehicle maintenance shop
- Divisional shops
- Supervisor offices
- Foreman offices

Vehicle / Equipment Storage: 824 square feet per vehicle. Typical spaces within this area may include:

- Large vehicle storage
- Small vehicle storage
- Small equipment storage (sidewalk plows, bobcats, etc.)
- Towed equipment storage

Utilizing these guidelines as well as the following assumptions pertaining to the new DPW facility, the following is total recommended facility size:

Administration:	12 administration employees @ 589 SF/employee = 7,068 SF
Employee Facilities:	41 work force employees @ 126 SF/employee = 5,166 SF
Shops:	5 divisions @ 3,705 SF/division = 18,525 SF
Vehicle/Equip Storage:	56 vehicles @ 824 SF/vehicle = 46,144
Support Area (wash/canopy):	3,060 SF per facility

Total Recommended Building Size: 79,963 SF

III. Conceptual Design Alternatives

Alternative Goals

Prior to developing conceptual design alternatives, Gannett Fleming and the Town established project goals to be used in preparing each alternative. These goals were developed with the intent of providing a building that is efficient, meets the needs of the DPW, and also addresses the concerns and issues of the nearby residents.

To assist in developing these goals, Gannett Fleming and the DPW conducted a total of three (3) informational public meetings with the neighbors to identify neighborhood issues associated with the project. The first two meetings were held at the start of the project to obtain neighborhood input prior to developing the space needs and conceptual alternatives. Input from these meetings was used in developing *Building and Site Alternative Goals* which were ultimately used as a guide in developing the conceptual design alternatives. A copy of the meeting notes from the public informational meeting has been included as **Attachment D** to this report. The following is a summary of the goals established for the project:

1. Provide a consolidate facility (under one roof).
2. If buildings are to be separated on the site, try to keep all occupied spaces and unoccupied spaces together. In addition, try to keep buildings close to each other for employee convenience.
3. Locate administration area near access road.
4. Shield yard activities from the adjacent neighbors.
5. Shield or relocate salt shed away from neighbors.
6. Attempt to located overhead doors away from neighbors.
7. Create a court yard arrangement which faces Pleasant Street.
8. Consider a two story structure to reduce overall footprint.
9. Attempt to develop a structure which will not shield existing neighborhood sight lines.
10. Shield the railroad tracks from the neighborhood.
11. Avoid underground sewer line and underground culvert (Wellington Brook).

A third informational public meeting was held upon completing the initial building and site alternatives. The building and site alternative goals were presented to the neighbors along with four (4) conceptual site plans. The advantages and disadvantages of each alternative were presented to the neighbors and additional public input was gathered for incorporation into the final alternatives.

Zoning Analysis

Gannett Fleming also conducted a zoning analysis prior to developing conceptual design alternatives. The purpose of the analysis was to identify potential use regulations that may restrict the development of the site. The Town of Belmont Zoning By-Laws, as amended through April 26, 2004, were utilized in performing the Zoning Analysis. In accordance with the Zoning Map of the Town of Belmont, the site is classified as B – General Business. In accordance with Section 3 – Use Regulation, Section 3.3, the use of the site for "other municipal uses" is permitted in the General Business District. The following dimensional regulations apply to this zoning district:

- Minimum Lot Area: None
- Minimum Lot Frontage: 20 feet
- Maximum Floor Area Ratio: None
- Maximum Lot Coverage: None
- Minimum Open Space: None
- Minimum Front Setback: 5 feet
- Minimum Side Setback: No less than building height or 20 feet, whichever is greater
- Minimum Rear Setback: 6 feet
- Maximum Building Height: 36 feet

Block Building Alternatives

Utilizing the space needs assessment, Building and Site Alternatives Goals established for the project, and the results of the Zoning Analysis, Gannett Fleming began developing conceptual building and site alternatives. The development of these alternatives consisted of developing conceptual building arrangements and locating the building arrangements within the available limits of the site. The conceptual building arrangements were developed by utilizing the results of the space needs assessment to develop "Block Building Plans". These Block Plans were separated into the major space categories for the new public works facility as follows:

- Administration
- Employee Facilities (lunch room, locker room facilities, supervisor offices)
- Work Shops
- Fleet Maintenance
- Vehicle and Equipment Storage
- Wash Bay

The configuration and size of each building block was developed by piecing together the room part plans including maintaining the necessary space adjacencies identified during the space needs assessment. Utilizing the part plans to set the size and shape of each building block allowed the conceptual site alternatives to be easily converted into architectural floor plans without requiring major adjustments to the preferred conceptual layouts.

In addition to the initial goals set for the development of the conceptual design alternatives, Gannett Fleming also considered several other critical factors which could effect DPW operations. The following is a summary of these factors:

- Existing site configuration and topography
- Availability of utilities
- Screen parking areas from the street and neighbors
- Identify alternate access points into the site (access across tracks)
- Design site circulation to avoid vehicular lighting from shining on surrounding property
- Configure building to allow the site to be secured by fencing
- Program provisions for salt shed access, mixing operations, loading operations and general circulation
- Protect existing structures designated to remain (Light Department Building)
- Consider potential drainage systems requirements such as detention/retention basins
- Consider material storage bins – access and ease of handling
- Consider pipe and casting storage areas
- Consider fueling operations
- Consider future expansion opportunities

- Consider traffic flow into/out of the site
- Consider construction staging to maintain DPW operations on site at all times
- Consider other Town uses (Recycling Swap Center and Cardboard Recycling)

Utilizing the Block Building Plans, Gannett Fleming initially developed eleven (11) conceptual alternatives for the site. The advantages and disadvantages for each alternative were identified and reviewed at a meeting with the DPW. Based on input obtained at this meeting, and subsequent meetings, the alternatives were modified to incorporate the most advantageous components from each of the alternatives. A total of twenty-two (22) alternatives were created for the site. Alternative No. 15 and Alternative No. 22 were, subsequently selected as the preferred alternatives and were used as the basis for developing the conceptual cost estimates. A copy of the block building plans for Alternative No. 15 and Alternative No. 22 have been included as **Attachment E** of this report. The associated advantages and disadvantages for these alternatives have been included as **Attachment F** of this report.

IV. Preferred Alternatives

Utilizing the preferred block building plans, Gannett Fleming developed conceptual site plans and conceptual floor plans for the project. These plans identify all the major site and building components including:

- Building locations and orientations
- Overhead door locations
- Interior adjacencies and interior access paths
- Paved circulation and yard areas
- Parking areas
- Salt/Sand storage areas
- Material storage areas
- Fueling area
- Wash bay area
- Landscaped areas

It is anticipated that the new facility and site improvements will benefit the Town and the neighbors as follows:

- Vehicles stored inside. Eliminates de-icing and warming of diesel fueled vehicles which will mean less idling time and reduction in exhaust emissions.
- More efficient work space and response times. Vehicles, equipment, and workspace are easily accessible.
- Interior storage of vehicle will help protect the environment by collecting any potential leaks from a vehicle in a closed floor drain system.
- All vehicle washing will be conducted undercover in a separate wash bay and wash

water will be collected in the closed system and recycled.

- Protect the Town's multi-million dollar investment in vehicles and equipment by protecting the equipment from corrosive conditions and vandalism which will extend the useful life of the vehicles.
- Building will conform to latest and anticipated future regulatory requirements.
- Improved drainage and storm water site handling to conform to DEP's Stormwater Quality Standards.
- Code compliant and clean work environment for Town employees.
- Improvements to the surrounding neighborhood by locating noisy activities indoors and shielding yard activities with the new building.
- Exterior site lighting will consist of directional lighting designed to prevent spillover into the adjacent property and facility security will adequately protecting the Town's investment
- Site improvements will reduce the amount of dust generated which will benefit the surrounding neighborhood.
- Consolidation of operations will improve efficiency of DPW operations which will make providing the many DPW services to the community more efficient.
- Building is equipped with critical components for emergencies including emergency power provisions for entire facility to provide continuous services to the Town.
- Buildings have been arranged on site to accommodate potential future expansion.

A copy of the conceptual site plans, floor plans, and building elevations have been included as **Attachments G, H, and I** to this report.

The site plan currently contains a designated area for a potential future Recycling Swap Center and Cardboard Recycling Center. It should be noted that these functions received strong opposition from the adjacent residents due to the potential increase in traffic volume on the weekends. Based on the current and future needs of the DPW, it is apparent that the entire site will be required to support DPW operations. Consequently, it is not recommended that potential future uses by other town departments be considered for the site

The site appears to have adequate utilities available to support the new facility including water, sewer, electric, and natural gas. At the request of the Water Department, a redundant water main will be provided from C Street to support the site. This will ensure continued operation of the new facility in the event of a required shut down or breakage.

The traffic flow patterns for the site were also reviewed during the conceptual design phase. Based on the current use of the site, proposed building layouts, and parking locations, it was determined that there would be a slight increase in traffic during normal business hours of the DPW associated with the public visiting the relocated administration offices. No major traffic pattern variations are anticipated for DPW Operations traffic unless a new crossing is provided to Pleasant Street. The addition of this crossing would reduce DPW vehicle traffic

through the adjacent neighborhood areas.

Railroad Crossing

As required by the Scope of Services in the Town of Belmont Request for Proposals, Gannett Fleming investigated the feasibility of an additional entrance/exit to the site from Pleasant Street. Initially there were two alternatives considered; a bridge across the railroad tracks and a private at-grade Highway-Rail crossing. Due to the existing topography as well as high construction costs, the a 200' long bridge at a cost of approximately $4,000,000 was not considered as a viable option. As a result, Gannett Fleming reviewed the potential impacts associated with constructing an at-grade Highway-Rail crossing.

The crossing would consist of a two-lane access roadway with traffic in both directions. This crossing will be use exclusively for DPW employees to access the headquarters and not open to public use. This Highway-Rail crossing will be for DPW vehicles which provide services to the Town, large trucks carrying supplies and other needed materials to support operations, and DPW employee privately owned vehicles.

The design, installation and maintenance of all public and private Highway-Rail crossings follows guidelines set forth within the Manual of Uniform Traffic Control Devices (MUTCD) and the American Railway Engineering and Maintenance-of-Way Association (AREMA) Communication and Signal Manual of Recommended Practices. The MUTCD and the AREMA Manual prescribe minimum standards and regulations for highway-rail grade crossings. These standards and manual parts do not restrict an authority or public agency from adopting and enforcing additional or more stringent requirements, which are consistent with the standards and manual parts.

The AREMA Communication and Signal Manual of Recommended Practices Part 3.1.36, Recommended Functional Guidelines for Configuration Plans for Highway-Rail Grade Crossing Warning Devices, Paragraph B.3, describes the process of selecting the warning devices through a diagnostic team meeting as follows: "To supplement the process of determining the selected devices a diagnostic team may be used. A diagnostic team means a group of knowledgeable representatives of the parties of interest in a railroad-highway crossing or a group of crossings (see CFR Title 23, Section 646.204). The purpose of the diagnostic team is to assess all aspects of the highway-rail grade crossing and then reach a conclusion as to the type of warning devices to be installed."

The MUTCD 2003 edition, Section 1A.07 Responsibility for Traffic Control Devices states "The responsibility for design, placement, operation, maintenance, and uniformity of traffic control devices shall rest with the public agency or official having jurisdiction. 23CFR 655.603 adopts the Manual on Uniform Traffic Control Devices as the national standard for all traffic control devices installed on any street, highway, or bicycle trail open to public travel."

The MUTCD 2003 edition**,** Section 1A.08 Authority for Placement of Traffic Control Devices states **"**Traffic control devices, advertisements, announcements, and other signs or messages within the highway right-of-way shall be placed only as authorized by a public authority or the official having jurisdiction, for the purpose of regulating, warning, or guiding traffic." Section 1A.09 of the MUTCD gives guidance to the selection of warning devices and their impact on the surrounding area. The following is the guidance this section provides, "The decision to use a particular device at a particular location should be made on the basis of either an engineering study or the application of engineering judgment. Thus, while this manual provides standards, guidance, and options for design and application of traffic control devices, this manual should not be considered a substitute for engineering judgment. Engineering judgment should be exercised in the selection and application of traffic control devices, as well as in the location and design of roads and streets that the devices complement. Jurisdictions with responsibility for traffic control that do not have engineers on their staffs should seek engineering assistance from others, such as the State transportation agency, their County, a nearby large City, or a traffic engineering consultant."

As stated in the MUTCD and the AREMA C&S manuals a diagnostic team should be assembled and should include the following agencies and authorities.

1. Massachusetts Highway District staff
2. Regional Traffic Planners and Development Agencies
3. Environmental Protection Agencies (EPA)
4. Railroads MBTA, Amtrak or CSX
5. Town or County officials
6. Community Council members
7. Local Utilities (Gas, Electric, Telephone, Cable Water and Sewer)

A basic crossing signalized with flashing light signals (front and back), entrance gates and bells has an approximate cost of $150,000.00 (one Hundred fifty thousand) dollars. Site costs associated with this crossing including roadwork, grading, drainage and material required to build road surface up to and through the railroad right of way, and retaining structures is estimated to be an additional $130,000. This cost does not include any major signaling cost the railroad(s) may incur for the installation of this Highway-Rail crossing or annual cost to maintain this crossing.

The Town will be required to acquire a corridor of land from a private land owner from the railroad tracks to Pleasant Street in order to construct a new entrance/exit. Costs associated with acquiring this corridor of property is estimated at $250,000 to $300,000 utilizing the Town of Belmont Assessing Department Market Value statistics.

<u>Environmental Issues</u>

Gannett Fleming also reviewed the past history of the site to determine potential environmental regulatory issues which may be triggered by the project. Based on a review of the on-line Massachusetts Department of Environmental Protection (MADEP) Searchable Site Database, there appears to be no Release Tracking Numbers (RTNs) assigned by the MADEP, associated with the Town of Belmont Department of Public Works (DPW) facilities located at Highway and Water yards in Belmont Massachusetts. According to the database, last updated February 24, 2006, there is however two reported releases listed for the abutting Municipal Light facility, located at 40 Price Street. The first release associated with the 40 Prince Street address was reported to the MADEP on October 1, 1998 and was assigned RTN 3-0016746. The second release was reported to MADEP on September 14, 1999 and was assigned RTN 3-0018755. Oil was identified in the database as the contaminant type for each of these releases. The database shows that a Class A-1 Response Action Outcome (RAO) was filed for each of these two releases on September 1, 2000 and October 3, 2000, respectively, indicating that a permanent solution has been achieved and contamination has been reduced to background levels. Based on the current compliance, these two reported releases do not appear to represent an environmental issue for the DPW facilities located at the Highway and Water yards.

Based on a review of the historical information available, it appears that the property has been occupied by the Town and utilized as a maintenance facility for approximately the past 50 years. Current and past operations conducted at the facility include the use of oil and hazardous materials including virgin and waste motor oils, degreasers, waste coolants and waste antifreeze. Although there is no known contamination associated with the facility, because the current and historic operations conducted at the facility involve the use of these materials, it is possible for these materials to have impacted the subsurface and contaminated soil and/or groundwater could be encountered during the proposed construction activities at the facility.

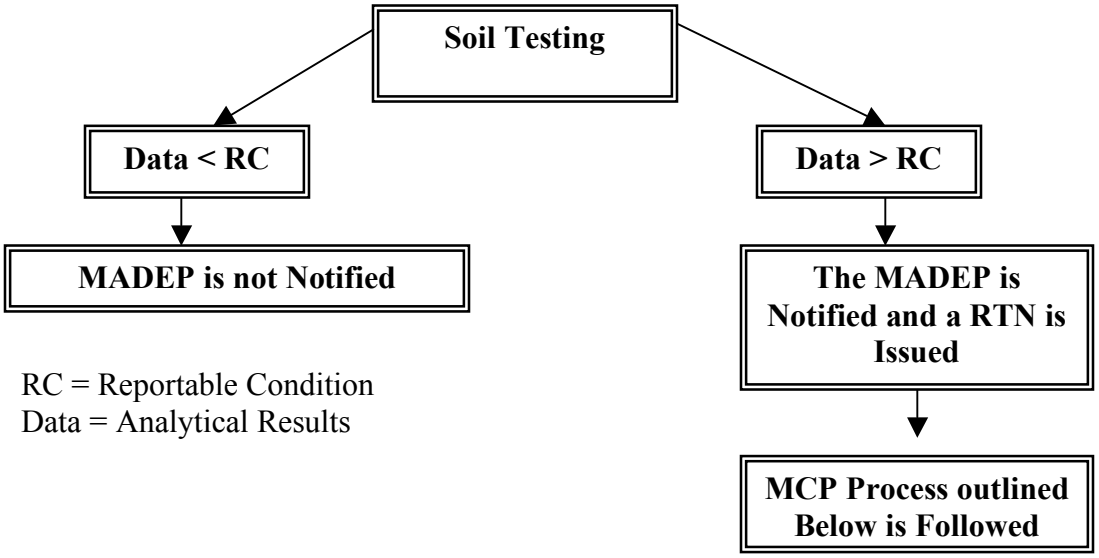
Possible contaminant pathways which may exist at the facility include the discharge point of any floor drains or floor trenches, if not connected to the municipal system; any current or historic underground storage tanks; and hydraulic lifts with underground pits which would be considered suspect for PCB content because of its use in hydraulic fluids. Other areas of potential concern include the area adjacent to the railroad tracks. In the past it was common practice to spray pesticides along railroad tracks to control the growth of vegetation along the tracks. Also, many railroad beds are sources of petroleum compounds and PCBs.

In addition to potential contamination associated with facility operations, another possible condition to be encountered would involve fill soils which may contain petroleum constituents, metals and polynuclear aromatic hydrocarbons (PAHs) attributable to coal ash or wood ash, which is common in the Metro Boston area. Although some of these materials can be considered a background condition under the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000, if encountered construction crews must still follow appropriate

health and safety precautions when handling these materials, and options for off-site disposal and/or on-site reuse of excavation spoils containing these fill materials must be in compliance with the MCP.

If during construction activities contamination is encountered and a reportable condition under the MCP exists, it would have to be determined what reporting requirement is applicable in accordance with 310 CMR 40.0315. If the condition is reportable to the MADEP within 120 days, an evaluation as to whether a Limited Removal Action (LRA) as defined in 310 CMR 40.0318 can be completed within that time frame should be performed. LRAs can be undertaken by the property owner prior to notification to the MADEP of those 120-day release notifications. If a LRA cannot be undertaken for the 120-day notification release or the site represents a 2-hour or 72-hour reporting condition, a Release Notification Form would need to be filed with the MADEP.

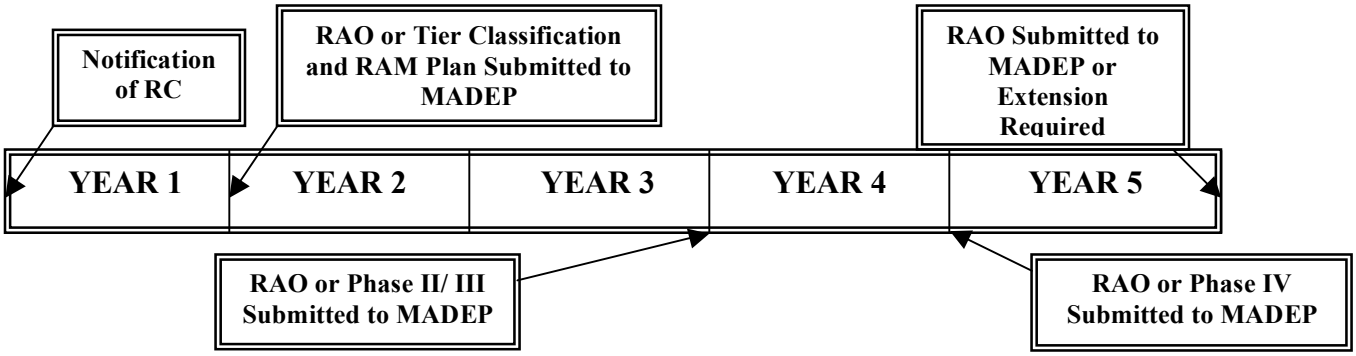
The following page contains a flowchart which provides a summary of the actions that would be taken if there is knowledge that a Reportable Concentration has been exceeded:



RC = Reportable Condition
Data = Analytical Results

The MCP Process

While the specific MCP Reports that are submitted for a site are dependent on the extent of the contamination, the following flowchart outlines general MCP timelines:



V. Detailed Conceptual Cost Estimate

An initial conceptual cost estimate has been prepared for the construction of the proposed Public Works Facility as shown in the preferred alternatives. Costs have been prepared for the following components:

- Construction of new pre-engineered metal buildings with select masonry finishes
- Site improvements, including storm water management improvements and demolition and removal of the existing buildings
- Professional service fees
- Municipal administrative costs
- Contingencies for unanticipated costs

The estimated cost for new building construction and site improvements are based on costs of similar construction for which bid prices are available, supplemented by cost data obtained from published sources. It is assumed that the project will be publicly bid and prices are based on current 2006 dollars. The prices will need to be adjusted for inflation as follows:

- 10% for 2007
- 6% for 2008
- 5% for each year after 2008

The following is a summary of the Total Project Costs:

Building Cost:	$11,906,000
Site Costs:	$2,041,000
Demolition:	$228,000
Equipment:	$340,000
Support Structures:	$475,000
Contractor General Conditions:	$375,000
Design Contingency (5%):	$768,000
Subtotal:	$16,133,000
Construction Contingency (10%):	$1,613,000
Town Administrative Costs:	$2,544,000
PROJECT TOTAL:	$20,290,000

This Project Total does not include costs for the following items:

- Costs for hazardous material removal/remediation
- Deep structural foundations
- Property acquisition for Pleasant Street access road (estimated at $250,000 to

$300,000)
- Private at-grade Highway-Rail crossing (estimated at $280,000)
- Relocation of existing underground culvert or sewer main

A copy of the detailed conceptual cost estimate prepared by Gannett Fleming has been included as **Attachment J** to this report.

An independent cost estimate was prepared by Daedalus Project, Inc. utilizing the conceptual site plans and the conceptual floor plans contained in Attachments G and H. The following is a summary of the independent cost estimate compared with Gannett Fleming's cost estimate:

Building Cost:	$10,130,884
Site Costs:	$1,542,288
Demolition:	$220,840
Equipment:	$426,600
Support Structures:	$475,000[1]
General Conditions, Overhead, and Profit:	$1,761,848
Design Contingency:	$1,232,061
Subtotal:	$15,789,521
Construction Contingency (10%):	$1,579,000[1]
Town Administrative Costs:	$2,544,000[1]

PROJECT TOTAL: $19,912,521

[1] Item was not included as part of independent estimate. Cost from Gannett Fleming estimated carrier for this line item.

A copy of the detailed independent cost estimate has been included as **Attachment K** to this report.