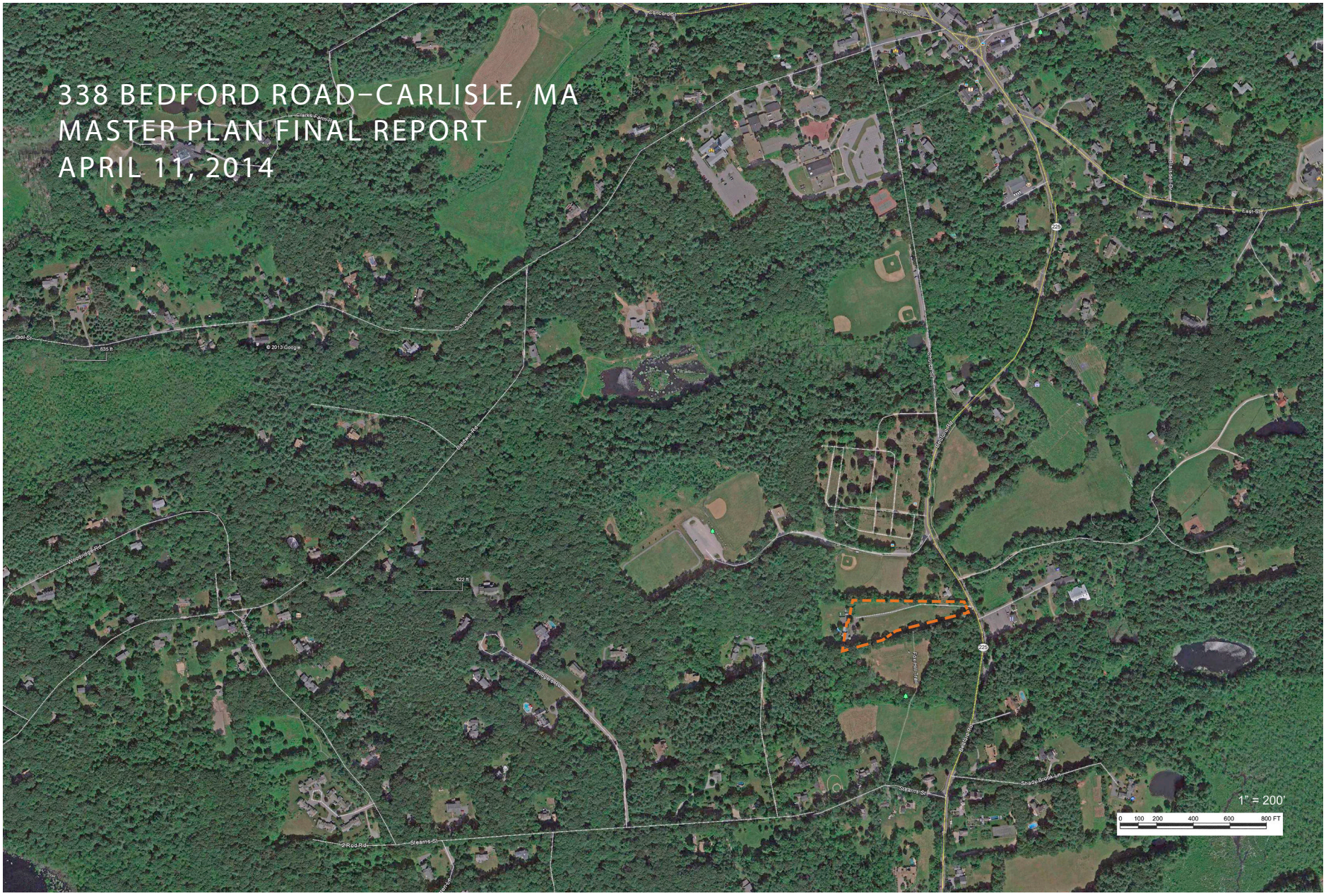
338 BEDFORD ROAD–CARLISLE, MA
MASTER PLAN FINAL REPORT
APRIL 11, 2014



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The Town of Carlisle, at a November, 2012 Special Town Meeting and subsequent Special Town Election, authorized the Carlisle Affordable Housing Trust to purchase a five acre parcel of land located at 338 Bedford Road. The Trust closed the acquisition of the Property in May, 2013. The purchase was intended to be used for development of facilities that meets Town needs. The seller put a 10 bedroom limit on group home residential development on the property and also allowed a community or recreational center, recreation fields, and certain other supportive uses.

The primary need that has been established is for two single level accessible group homes for developmentally disabled adults. Each building is to have four or five bedrooms (nine or ten total), living spaces, kitchen, office, support facilities, and associated access, parking for vans, employees and visitors, and usable outdoor space. The development will also need to include a well, an on-site Title V septic system, and fire protection as required by regulatory authorities. The development of these homes will allow developmentally disabled adults to remain in the community, while allowing the Town to add nine or ten units to Subsidized Housing Inventory and parking as defined by Chapter 40B regulations.

The housing is to be sited to allow other potential future uses on the property. Uses considered by the Trust include:

- A multi-generational community center to meet the needs of a growing senior population and/or the need for recreation and meeting space for residents of all ages. Current facilities, such as Town Hall, are often overbooked, and additional space appears to be needed. The facility will need to include provisions for water, sewage and fire protection along with parking and access.
- Outdoor recreational facilities such as a swimming pool, tennis courts, basketball court, Little League field and seasonal skating rink.
- A secondary access road from 338 Bedford Road could also provide access to the adjacent 39 acre property owned by Banta-Davis. Of those 39 acres, 6.5 are currently used for recreational playing fields and studies have been done to build an affordable housing rental development on that site as well. This secondary access road would primarily serve the group homes, but could also serve as a secondary or emergency access road to Banta-Davis.
- Carlisle does not have a municipal water or sewage system. 338 Bedford Road could provide a location for facilities that serve the site and the future development on the Banta-Davis site. These include an additional leaching field for the Town-owned waste water treatment facility located on the Banta Davis property, and a fire cistern. On the other hand, a large community facility at 33 Bedford Road would have to draw its water from a well on Banta-Davis as there is insufficient area at 338 Bedford Road to locate a public drinking well.
- One or more utility corridors from Bedford Road through the 338 Bedford Road property that could

serve uses on site or on the Banta Davis site.

- Trails from the adjacent Town owned Fox Hill Conservation property through the 338 Bedford Road property to the Banta Davis property to form a continuous walking path.

In July of 2013 a Request for Qualifications was issued to qualified design teams for the preparation of a Master Plan for the property. Qualifications were reviewed and teams interviewed.

Abacus Architects + Planners (David Eisen and David Pollak - Principals, with Ryan Associates Landscape Architects (Tom Ryan - Principal) and Samiotes Consultants Civil Engineers (Steve Garvin - Principal) were hired by the Affordable Housing Trust to prepare the 338 Bedford Road Master Plan. Working with Elizabeth DeMille Barnett, the Town's Housing Coordinator, Greg Peterson, Chairman of the Affordable Housing Trust, and members of the Trust and Board of Selectmen, the Abacus Team developed a public process to gather information from residents on Town needs, development preferences, and resident concerns. Based on this input plan options were to be developed, evaluated by Town boards and the public, and then revised to suggest alternatives directions around which a consensus could develop. The Affordable Housing Trust has the authority to make a final decision on the final master plan direction.

Although it was anticipated that 338 Bedford Road could accommodate a range of Carlisle needs, the group homes are the only use that has been approved for development. A primary objective of this master plan is to provide a location for the homes that is optimal for these residential uses, while allowing future development that is accessible to Town residents while respecting the privacy of group home residents. It is anticipated that a Request for Proposals for the development of these homes will be issued for responses from qualified developers and service providers. The final Master Plan is to include design standards for the group home construction and site development that would be included in the RFP.

The public process developed by the Affordable Housing Trust, Housing Coordinator, and the Design Team proceeded as follows.

Design Charrette I – September 16, 2013

Members of Town boards, local design professionals, and other interested parties were invited to participate in a hands-on design process to establish basic approaches to the master planning of the site. The evening was organized to raise questions and develop possibilities for development. Significant steps included:

- The Design Team led a walk around the 338 Bedford Road property and to the adjacent Fox Hill and Banta-Davis properties to acquaint participants with site features, property line definition, and relationship to adjacent properties and Bedford Road. Wetlands, topography, and the adjacent Landers residence along Bedford Road were noted.
- The Design Team introduced development options and then divided participants into two groups of approximately eight people each. Participants discussed and filled out adjacency matrixes that asked them to consider positive and negative relationships between possible program elements to facilitate an understanding of potential spatial relationships between them.
- Large scale aerial photos at 1" = 40' of the 338 Bedford Road property and its surroundings, and

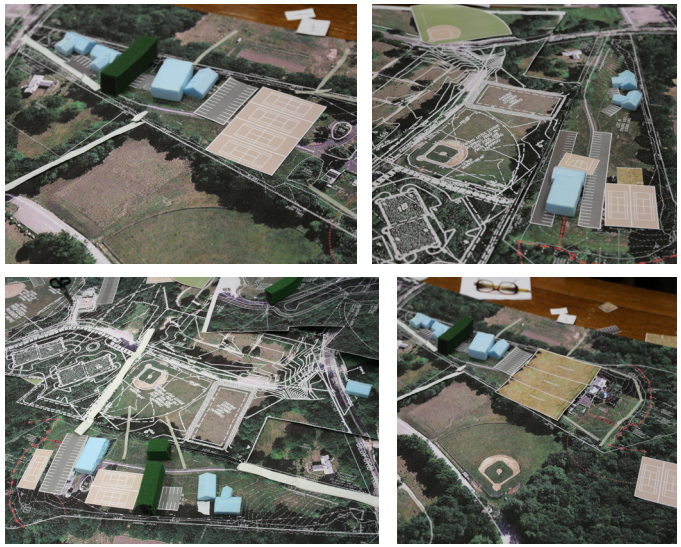
Above - Aerial view of 338 Bedford Road and adjacent Banta-Davis playing fields.

Below - View from existing house towards Bedford Road.

alternatives for the abutting portions of the Banta-Davis property, were set up on tables for the two groups to use as a basis for their work. Each group was provide with an assortment of playing field and parking lot plans, group home and community center conceptual foam block models, rolls of tape representing drives of varying widths, and green foam representing landscaped areas. They were requested to lay out a variety of options in three dimensions on the aerial photos to represent master plan options.

- Design Team members discussed options with participants and recorded their master plan options in photographs.

Based on the master plan ideas developed at the charrette, the design team developed a series of plan options representing the variety of ideas suggested. Options included group homes towards the front of the site, group homes towards the rear of the site, playing fields in varying number and configuration, access road and drives with different configurations, and community centers with different sizes and locations. Different relationships between the 338 Bedford Road property and adjacent Fox Hill and Banta-Davis properties were developed.



Above - Design charrette in process

Below - Images of design charrette layouts

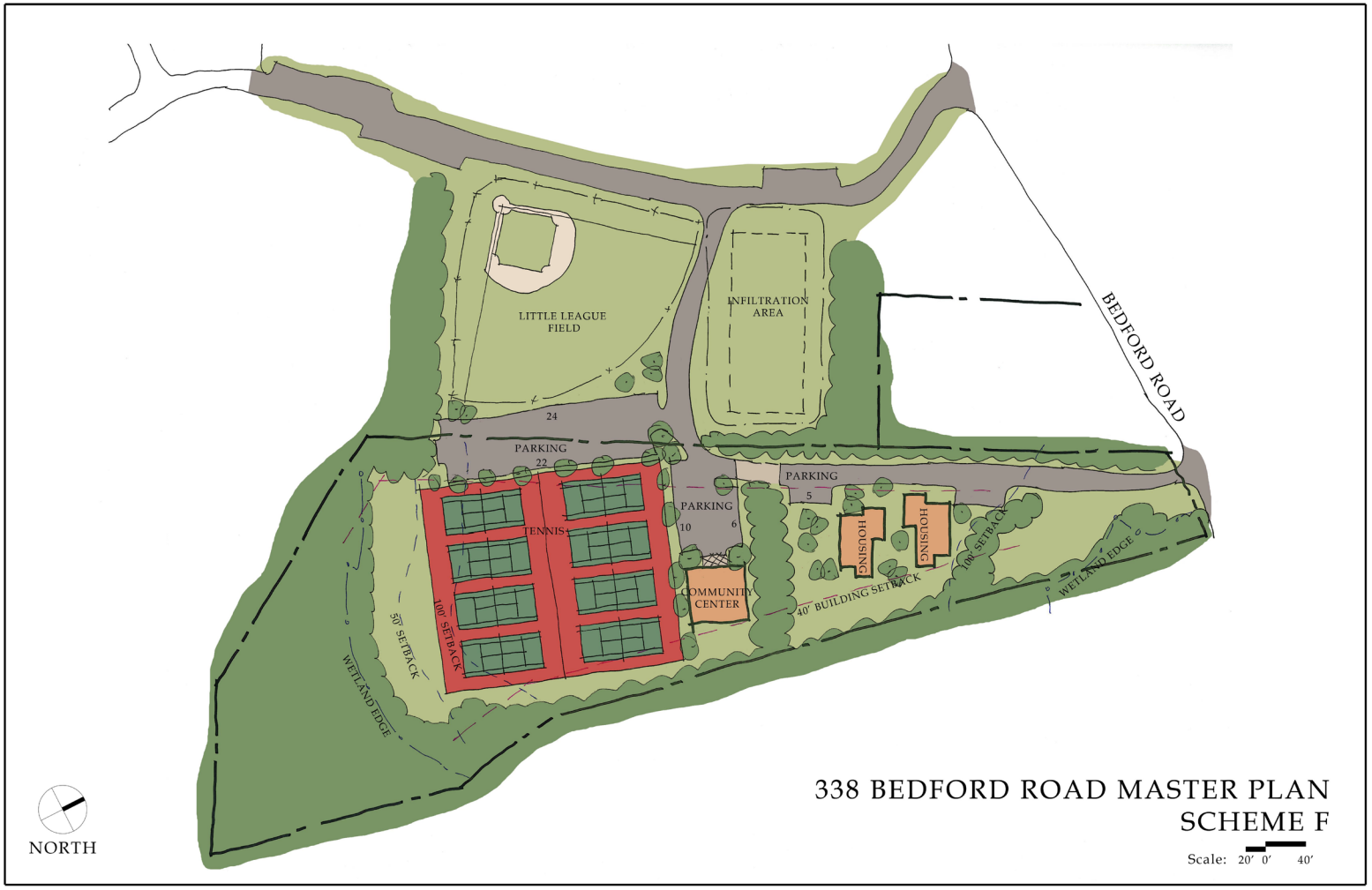
Housing in front allows development of recreational facilties in the rear with parking serving 338 Bedford Road and Banta-Davis playing fields. A drive connects the two properties between the baseball field and the infiltration area.

Parking is broken into smaller lots with much of it located between the Banta-Davis baseball field and the adjacent wooded area along a connecting drive.

Parking provides a buffer between recreational facilities in the rear and housing in front with a connecting driveway on the north side of Banta-Davis.

Housing at the rear of the property has generous open space. A community center and recreational facilities at the front are accessed from the Banta-Davis property and Bedford Road. Parking is accommocated in several small lots.

The site could provide additional parking for Banta-Davis activities along with parking for a community center or other uses on 338 Bedford Road. Parking would be accessed from the Banta-Davis property.

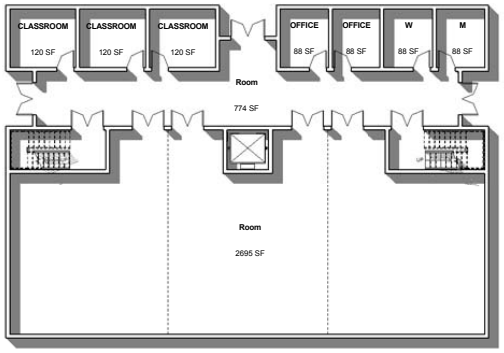


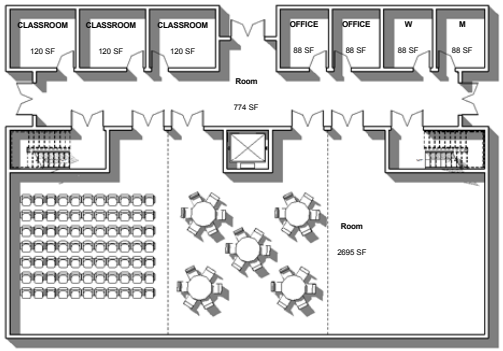
With housing at the front of the site the rear could accommodate a variety of recreational uses that augment those on other Carlisle properties. Parking could serve both 339 Bedford Road and the Banta-Davis property and help tie them together as a single recreation area.

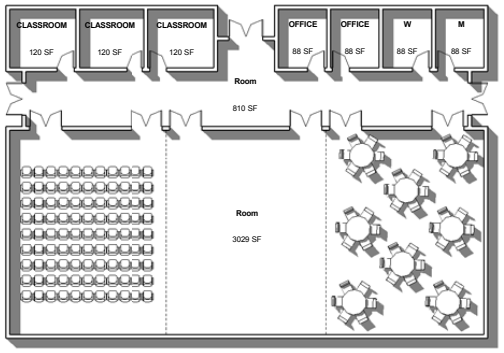
Design Charrette II – October 14, 2013

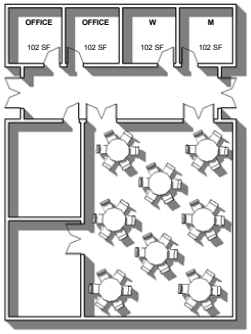
Master Plan Conceptual Options developed from Charrette I layouts were presented to the participants along with a recap of the issues discussed. Possible planning options and models for group homes, and conceptual layouts for 2,500, 5,000 and 10,000 square foot community centers were presented to suggest the scale of the development being considered. The Design Team distributed a series of questions that were intended to form the basis for discussions and further design work. Options were discussed in a spirited exchange of ideas. Participants contributed the following thoughts:

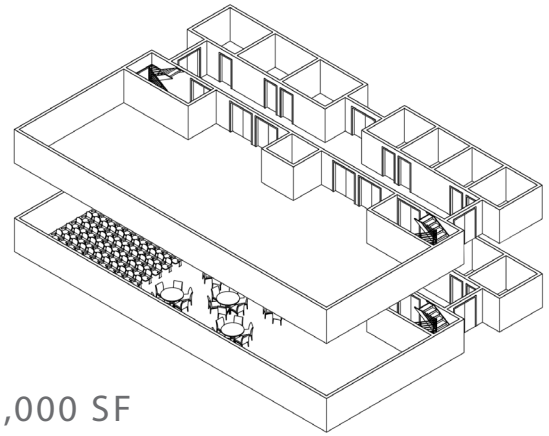
- David Klein of the Council on Aging highly recommended a 10,000 square foot senior center/ community center to accommodate the needs of an aging population and residents of all ages.
- Parking for the community center could also serve adjacent playing fields on the 338 Bedford Road and Banta-Davis properties.
- Other participants believed that a 10,000 facility was too large and would require too much parking.
- A road connecting 338 Bedford Road with Banta-Davis should not be located where it might be dangerous for children using playing fields.
- Although playing fields could be included on the 338 Bedford Road site, this did not appear to be a high priority for participants.
- A limited number of basketball or tennis courts that could also be used as a seasonal skating rink, received significant support.
- Participants tended to favor siting the group homes towards the front of the site where they would connect to the neighborhood fabric and where they could be easily accessed from Bedford Road, leaving the wide rear of the site for development of community and/or recreational facilities. These facilities would be accessed from the Banta-Davis property with a fire lane closed to the public connecting to the group home access driveway.
- A minority believed that the group homes should be at the rear of the site where they might have more privacy. They proposed that this option should be kept open for consideration.
- Participants felt that the group homes should offer residents privacy while connecting them to the broader community.



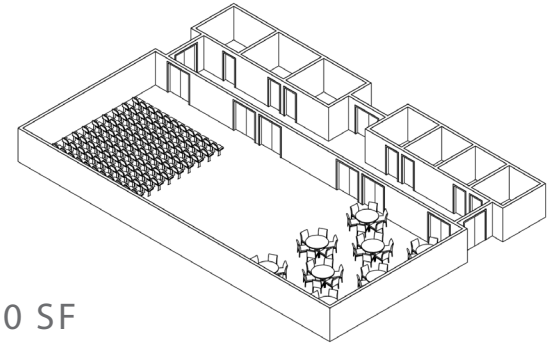




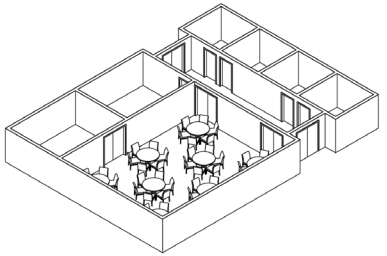




10,000 SF



5,000 SF



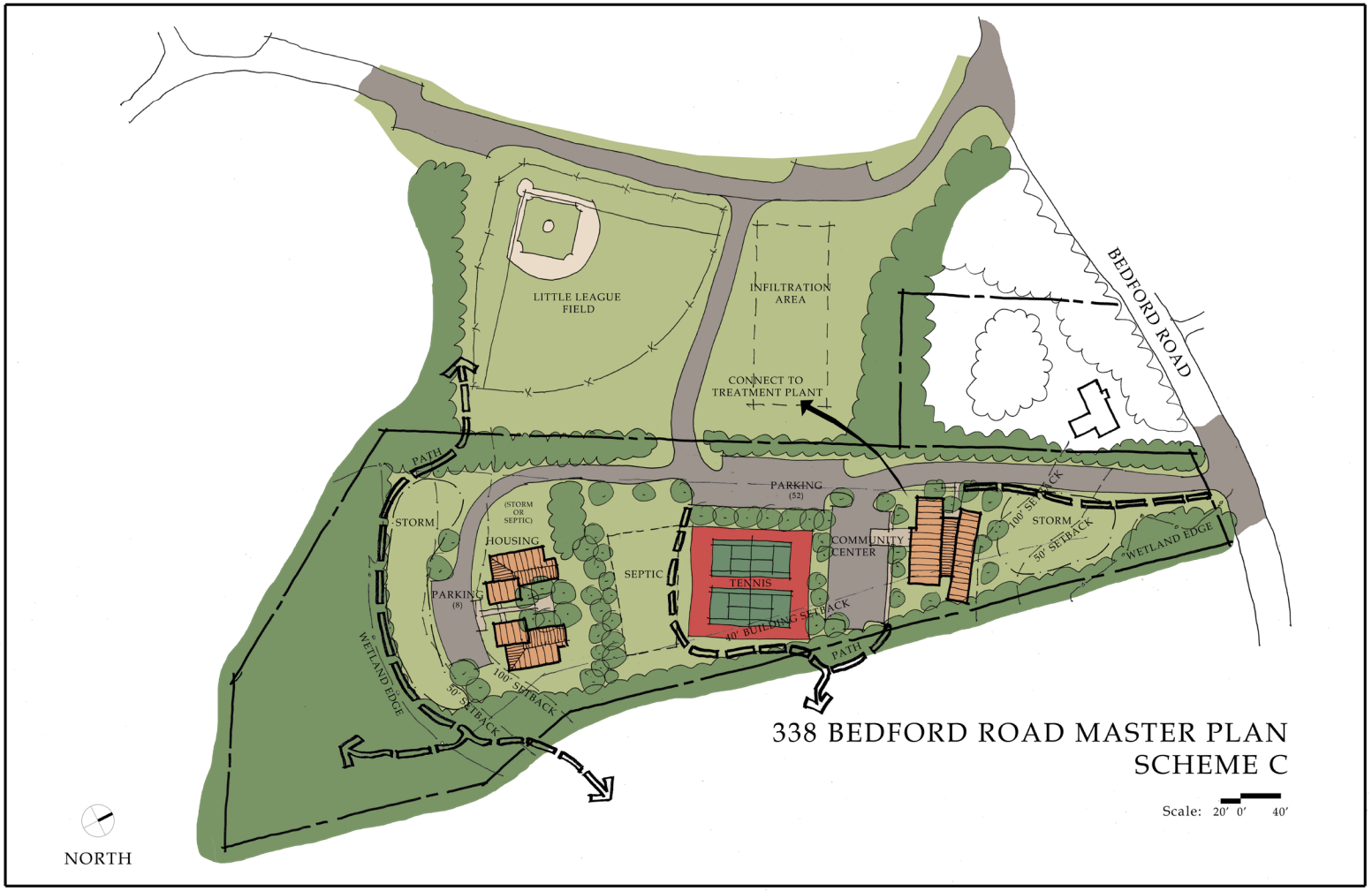
2,500 SF

338 Bedford Road could accommodate a community center between 2,500 and 10,000 square feet depending on how the site is utilized. The Town should evaluate its needs and how to accommodate them on a comprehensive level and review the appropriateness of this site for community center uses. These diagrams illustrate the program at a varietyof sizes and were presented to the charrette members for reference.

A `10,000 square foot community center and associated parking occupies the wider back half of the site with housing facing Bedford Road. The parking can be shared with Banta-Davis recreational facilities. Walking paths offer a variety of connections to adjacent properties.

Housing can be built first allowing recreational and other uses to follow as the Town evaluates its priorities and how to meet them.

A smaller community center footprint would allow other recreational uses to be accommodarted. They could connect the 338 Bedford Road property with the Banta-Davis property and its current or new recreational facilities. Parking could serve uses on both sites and help connect them together.



Housing located at the rear of the site allows recreational uses to occupy the center with a small community near Bedford Road. Parking is limited but could serve both sites. Housing would be isolated behind public uses and far from the main access road.

Responses to the Conceptual Master Plans were noted and plans reconfigured and consolidated to represent two primary options: housing in the front with community facilities at the back of the site, and housing at the back of the site with community facilities at the front. Relationships to the Fox Hill and Banta-Davis properties were refined, along with parking and roadways. A 5,000 square foot and a 10,000 square foot senior/community center were illustrated.
These plans were presented to four Town Boards for review and discussion. Below are comments from Board members and members of the public present:

Board of Health - December 3, 2013

Attending: Tom Ryan, Stephen Garvin Elizabeth DeMille Barnett, Greg Peterson, Board Members, the public.

- The creation of walking paths, especially accessible paths, connected to walking paths on adjacent properties, was encouraged.
- Reserving a leaching field expansion area on the site as a continuation of the existing field on Banta Davis, was favored. This would mean leaving significant space between the Community Center and the Housing. Parking or recreation facilities could be constructed over a leaching field.
- Preference for connecting to the treatment plant (at least initially) to feed the system and improve its function. The residential use would provide a more consistent flow and improve treatment efficiency. Housing sewage treatment system could be changed if the remainder of the site is developed.
- Well locations should be indicated on the site master plan.
- The Master Plan should include a DEP ruling on the feasibility of installing an independent septic system on the 338 Bedford Road site.
- Some of those attending were not supportive of a 10,000 square foot community center and 100 car parking lot on this site.

Conservation Commission - December 5, 2013

Attending: Tom Ryan, Stephen Garvin, Elizabeth DeMille Barnett. Commission Members and the public.

- The creation of walking paths, especially accessible paths, connected to walking paths on adjacent properties, was encouraged.
- Maximizing solar orientation of all buildings was encouraged.
- It was suggested that a 10,000 sf community center with parking lot and outdoor recreational facilities were too much development on the site in addition to the group homes.
- Well locations, septic fields and storm water infrastructure should be indicated on the master plans.
- It was suggested that the fire department might require 24' of pavement width and flat areas for equipment deployment for the housing driveway.
- The Commission indicated that it would not oppose locating group homes closer to Fox Hill than the ordinary 40 foot zoning setback.

Planning Board - December 9, 2013

Attending: David Pollak, Tom Ryan, Elizabeth DeMille Barnett, Board Members and the public

Elizabeth DeMille Barnett provided the Board with an overview of the project history and the context in relation to Carlisle's Supportive Housing Inventory and Chapter 40B. Tom Ryan presented an overview of the work to date by the design team and town participants through the two evening work sessions (charrettes) as well as the presentations to the Board of Health and Conservation Commission. Board Chair Marc Lamere led off with some questions and comments. He spoke favorably toward:

- Locating the smaller scale group homes at the front of the site and larger scale community facilities at the larger back portion of the site.
- Providing a separate entrance driveway for the housing
- Connecting the community building and community facilities to Banta Davis access and facilities.
- Screening views of parking with buildings, landscaping and other means.
- Providing recreational/trail access to Fox Hill.

Mr. Lamere also wanted to make sure the following concerns were being addressed:

- Well location and clearances, public versus private well
- Leaching field issues requirements and locations
- Paving and storm water management including run-off location and treatment
- Fire department access issues including review by the fire department. There was some discussion of common versus private driveway regulations in relation to fire department requirements.
- Fire cistern questions including review by the fire department. It was noted that there is a fire pond on Church Street near Bedford Road.
- Connections with Fox Hill walking trails and open space.

Nathan Brown, a Board member who had participated in the charrettes spoke in favor of the housing up front. He agreed that the fire department should be consulted, and raised the question of whether the Banta Davis road connection might need to be included in the first phase of development in order to provide fire truck access and egress.

Jonathan Stevens expressed concern about the driveways and traffic in relation to child safety around the ball field(s).

Planning Board - December 9, 2013 (Continued)

Ed Rolfe asked about recreational opportunities and site development at the group homes, noting that the residents of a group home near where he lives play basketball outside their house.

Michael Epstein favors the housing up front and maximizing the usability of the remaining land by efficient planning of the group home portion of the site. He noted that there is a lot of protected open space in Carlisle and that this parcel should be planned to meet the needs of the town. For now that means maximum flexibility. He also suggested that the community uses are better toward the back where they are further from the private home on the adjacent Landers property.

Mr. Epstein suggested that it would be preferable to locate the group homes closer to the Fox Hill property, possibly situating them in the side yard setback if this is acceptable to the Conservation Commission, in order to keep the remaining parcel as open as possible. Mr. Epstein expressed concern that a turnaround drop-off driveway at the community center was 'doing the easy thing' and that it takes up a lot of land. Mr. Epstein suggested that it would be helpful to present a site plan that just shows the 'Phase 1' development associated with the group homes. There was general agreement to this idea and the consultants agreed to provide this drawing.

David Klein, Director of the Council on Aging spoke in favor of lots of walking paths and also of accessible paths.

Board of Selectmen - December 10, 2013

Attending: Tom Ryan, David Eisen, Elizabeth DeMille Barnett, Greg Peterson, Board Members, the public

Elizabeth presented history and goals of the master plan project and proposed housing. David and Tom presented housing plans, photo design references and Site Plan options. It was noted that ultimately the critical decisions for this master plan are about housing location and design guidelines. Other issues will be pursued in the future in relation to Banta Davis and other Town concerns.

- General support was expressed for housing at the front of the site rather than at the rear because it maximizes opportunities for future development and flexibility of use.
- Concern was expressed about maintaining view corridor on Bedford Road; David and Tom suggested that housing would be low and set back relatively far from the road and would not impinge on views and rural character. Other facilities would be set back even farther.
- Concern was expressed about 10,000 sf community/senior center and 100 cars. COA Director David Klein articulated the need for this size facility and two other residents spoke in favor of this size facility. It was noted that there may be other sites or other ways to meet community center and senior center needs and that the Town should investigate these before making decisions on the non-housing components of the 338 Master Plan.

- In response to Selectmen questions Tom noted that it would be simpler to develop the housing if it had its own independent septic system rather than connecting to the system on the adjacent Banta-Davis site. Samiotes will continue to investigate septic and water supply options.
- A resident expressed concern about the lack of formal crosswalks at 338 Bedford Road driveway. David Eisen noted that the planning team anticipates that all public facilities on the 338 Bedford Road site will be accessed from the Banta Davis site and entry drive. The housing site and drive should be designed as if it were a separate private property connected to the public facilities by a closed-to-the-public fire lane in conformance with Fire Department requirements.

Fire Department- January 9, 2014

Attending: Chief David Flannery, Deputy Chief Jonathan White, Rob Dennison, Tom Ryan, David Eisen, Elizabeth DeMille Barnett

Abacus and Ryan reviewed the proposed housing and possible community center. The fire department stated that they would like to have:

- A fire pond or 30,000 gallon fire cistern
- 18' wide drive with a 46' inside diameter turn around.
- Buildings 30' from significant stands of trees
- No mulch against buildings
- A fire alarm system

Elizabeth noted subsequently that in initial discussions with the Building Department she had learned that a 10 bedroom development with two buildings would have the same regulatory requirements as a single family house, and from that standpoint would not require an 18' drive or fire cistern/pond, and that a private drive rather than a common drive would be needed.

SECTION 3-MASTER PLAN PROCESS
MEETINGS WITH TOWN BOARDS

Public Presentation - January 25, 2013

Attending: David Pollak, David Eisen, Elizabeth DeMille Barnett, Greg Peterson, the public.

Elizabeth and Greg introduced the master plan goals. Abacus outlined the charrette process and outcomes, current plans, short term and long term options and pros and cons. Photomontages of a possible development scenario as seen from Bedford Road were presented.

Abacus also reviewed the outstanding issues the town faces that are related to 338 Bedford Road development but that are also independent: how to meet recreational needs; how to meet the need for a senior and community center; providing long term pedestrian and emergency access to 338 and adjacent site; providing long term site utilities to 338 and adjacent sites. The floor was opened up for discussion. Comments received are listed below:

- Town Hall is overused for community events and school buildings are often not available, so a community center would be a valuable town asset. The Town needs a community center planning process with private groups working with the Planning Board and Selectmen in a public/private collaboration that breaks through funding and planning "silos".
- The Town needs an overall master plan for growth and the development of community facilities. At the same time, citizens should speak up about what they need from the Town.
- Safety was a significant concern. The entry to 338 Bedford Road is on a bend in the road and minimizing vehicular traffic and pedestrian crossings was encouraged.
- Infrastructure issues must be addressed. A community center would require a public well but might provide the added flow the waste water treatment facility needs An open fire pond was discouraged.
- Michael Epstein from the Planning Board, Bill Risso from the Board of Health who has a special needs nephew, and a near-abutter, Scott Richardson from a house in the Bates Farm development nearby, and others supported housing on the front of the site. Their reasons included: a shorter access road and less plowing would be required (by service provider) which would reduce the cost and need for public subsidies; residents would be closer to the road and more connected to civic life; residents would be less likely to be disturbed by vehicular circulation and recreational activities that might connect to Banta-Davis; and smaller scale housing would use the narrower part of the site with the wider portion in the rear for larger community needs. Community facilities at the back could then be accessed separately from Banta-Davis.
- John Williams from the Board of Selectmen and Affordable Housing Trust spoke up about the importance of integrating residents into the community.
- Scott Simpson proposed that housing at the rear would provide more space and privacy for residents

and would be less visible from the road and could be accessed from the Banta-Davis property. He suggested that the housing be prioritized through this siting.

- Barbara Lewis noted in a follow-up email: "Additional uses should be inclusive and multi generational. Many times we see residents of Carlisle long for interaction, but that does not happen in an environment of isolation and privacy. Let's create a situation where disparate people and groups actually collide. Games and music and old folks and those with disabilities and their families, and babies - imagine a hubbub. We get hubbub once a year in this town – it's called Old Home Day. And we love it. Perhaps we could use just a bit more, and as a result, get the most out of this one piece of property."

Views from Bedford Road top to bottom: existing; with two five bedroom group homes and no trees; with two five bedroom group homes and trees along driveway.

338 BEDFORD ROAD MASTER PLAN
SCHEME A

Scale: 20' 0' 40'

The housing can be completed first, allowing the remainder of the site to remain open until a final decision is made on how to utilize it. A drive from Bedford Road provides access. Walking trails connect the Banta-Davis property on one side to the Fox Hill Conservation land on the other.

In a later stage of development a communiity center occupies the larger part of the site to the rear with the housing adjacent to Bedford Road. The community center and parking are accessed from the Banta-Davis property with a fire lane connecting them to the housing's driveway to Bedford Road.

A five thousand square foot community center close to Bedford Road allows visibility to those passing by and provides a more secluded setting for the housing to the rear. Drives connect to the Banta-Davis property while landscaping screens different program elements from one another. If the housing were to be constructed first a long access road would be required.

The design charrettes, meetings with Town Boards, and public meetings suggest a general direction for the development of the group homes on the 338 Bedford Road site. Although there may not be unanimity on the siting of the buildings or all of their characteristics, we have developed these guidelines to help structure a Request for Proposals to interested developers and service providers that will result in facilities that meet the Towns needs. Further reviews will be required as the project develops. These guidelines are intended to allow development of the site for other uses in other locations while protecting access to, egress from, and the privacy of the group homes.

Site Development

1. The overall housing site should be located within the boundaries shown on the attached drawing. These boundaries set the required distance from the wetlands adjacent to Bedford Road on the front, and allow space for the development of a leaching field to supplement that on the adjacent Banta-Davis property in the rear.

2. The site should be developed to minimize required regrading while providing access to the site from Bedford Road, access to future development sites to the rear of the site, and allowing storm water management meeting state and local requirements including those of the Conservation Commission and Planning Board.

3. Parking, drop off and entry areas are to be fully accessible meeting MAAB and ADA requirements.

4. Wetlands and existing trees are to be protected and all local and state wetland requirements are to be met.

5. The access drive, parking and turnaround are to meet the requirements of the Service Provider, the Fire Department, and all state and local regulatory bodies.

Building Siting

1. Buildings are to be approximately 2,500 square feet each. Buildings are to be separate structures but sited to define common space between them for a terrace and recreation. They can be connected by an open-sided roofed structure - a pergola or arcade - that could provide overhead protection from the elements.

2. The two buildings are to be located in close proximity to drives and parking for convenience, but spaced far enough away to provide a buffer between buildings and vehicles.

3. Building within the side yard setback adjacent to the Town owned Fox Hill Conservation Area should be considered in order to provide more buffer space between the access road, the buildings, and the adjacent Landers property. It is anticipated that the new access road will be in approximately in the same location as the existing driveway.

4. Buildings should be sited to minimize their impact on the Bedford Road viewscape.

Building Massing and Construction

1. Buildings are to be one story and fully accessible with floor level close to grade. Massing should minimize the bulk of the buildings on the site, while providing pitched roofs and variegated forms that reference regional building traditions.

2. Buildings are to be designed to maximize passive solar heating and/or solar water heating/photovoltaic electrical generation. These features may suggest deviations from traditional forms and details. Orientation for solar should not lead to building orientations that conflict with road orientation or the goal of minimizing the impact on the viewscape.

3. Windows, bays, clerestories or dormers should be provided that minimize the need for artificial light during the daytime in rooms including bathrooms and hallways.

4. Buildings and systems should be designed and constructed to meet or exceed all applicable energy codes and requirements for fresh air and indoor air quality.

5. Exterior cladding is to be wood shingles or clapboards or fiber cement clapboard or panels. Vinyl siding is not to be utilized.

6. Windows are to be high performance wood, aluminum or vinyl clad wood, or fiberglass.

Floor Plan Layouts

1. Housing is to meet 521CMR Group 2B requirements.

2. Each of 5 bedrooms are to be minimum of 140 square feet with a 5' by 2' deep closet.

3. Kitchens are to be residential in nature and fully accessible - one in each home.

4. Living and dining areas are to be sized for 8 people; provide an additional sitting or study area.

5. Provide two full bathrooms and a laundry area.

6. Provide a 10' x 10' office - or as required by service provider.

7. Provide mechanical room space appropriate for systems being utilized.

8. Design entries with space for putting on and storing coats and easy access to the access drive and parking. Provide additional doors to outdoor terrace and recreation areas.

Landscaping

Walks and exterior patios or terraces should be accessible and provide access from a shuttle bus drop off area to the homes and from the homes to exterior spaces such as patios, terraces or hardcourts such as basketball.

The planting should help to blend the homes into the character of the neighborhood. The homes should have some shrub planting to soften the masses of the building from the street and to ease the transition from the road to the homes. Planting should be used to create some shaded and sheltered spaces outside for the residents allowing for use in all seasons. The areas on the periphery of the parcel should blend into their surrounds while retaining some measure of privacy for the residents. Planting should be maintained as required at the entry to the site to improve visibility and safety.

Site Utilities

Water service: There is no public available water main for this site, therefore the options for the water services for the development will need to be either a private well serving the 10 bedrooms (permitted locally through the Board of Health (BOH)) or tying into the proposed public well to be permitted for the Banta Davis site (through DEP). Order of Magnitude costs for these two options would be approximately $50,000 to tie into the public well (however the cost would be approximately $250,000 if this connection were designed to serve a subsequently constructed Town building on the back of the site) and $15,000 for a private well.

The Town of Carlisle Well Regulations will require identification of all potential sources of contamination within 200 feet. Development must meet the town's Non-Public Well Setbacks:

Property Lines	25'
Projections of any adjacent buildings	5'
Roadway right of way (whichever is greater)	25'/15' from
Pond/Waterbody High mark	25'
Barnyards, Stables, Manure piles	100'
Petroleum Storage Tanks	25'

Stormwater Management: A stormwater mitigation system for the proposed development will be required to ensure that post-development stormwater runoff conditions are equal to or less than the pre-development rates of runoff. The soil at the property is assumed to be well-drained, therefore an infiltration system consisting of a few drywells may be sufficient. This should be verified. A Notice of Intent (NOI) must illustrate to the Carlisle Conservation Commission and Massachusetts DEP that all work within wetland buffers meets the performance standards of the WPA

and local bylaws. This process typically takes one to two months after filing and can occur simultaneously with any other permitting / approvals process. Carlisle has regulations regarding the design of stormwater management systems that are very much in line with Mass DEP stormwater management policies. Meeting the state stormwater management standards and referring to the Carlisle regulations for materials and sizing should be sufficient to gain approval.

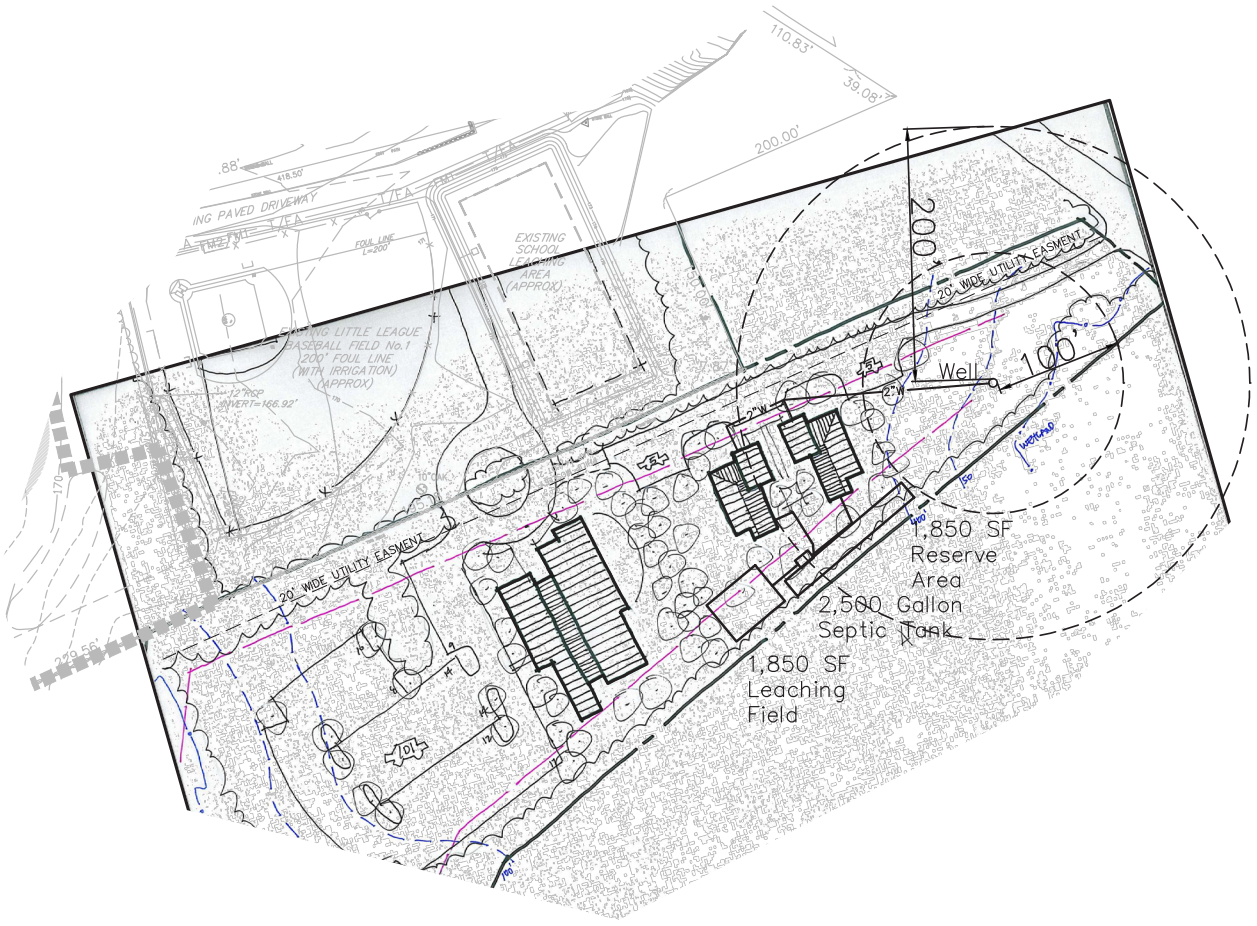
Sanitary Sewer: There are two potential options for meeting requirements for the residential development's sanitary sewage flow. One option would be tying into the existing School Department Wastewater Treatment Plant (WWTP) that currently has excess capacity. DEP requires that flow on contiguous parcels with the same owner be aggregated and treated / discharged by a common system.

The other option, assuming a long term lease from the Town for the development, would be for the developer to install a stand-alone septic system. Order of Magnitude costs for the construction of these two options would be approximately $65,000 to tie into the WWTP and $35,000 - $45,000 for a private septic system.

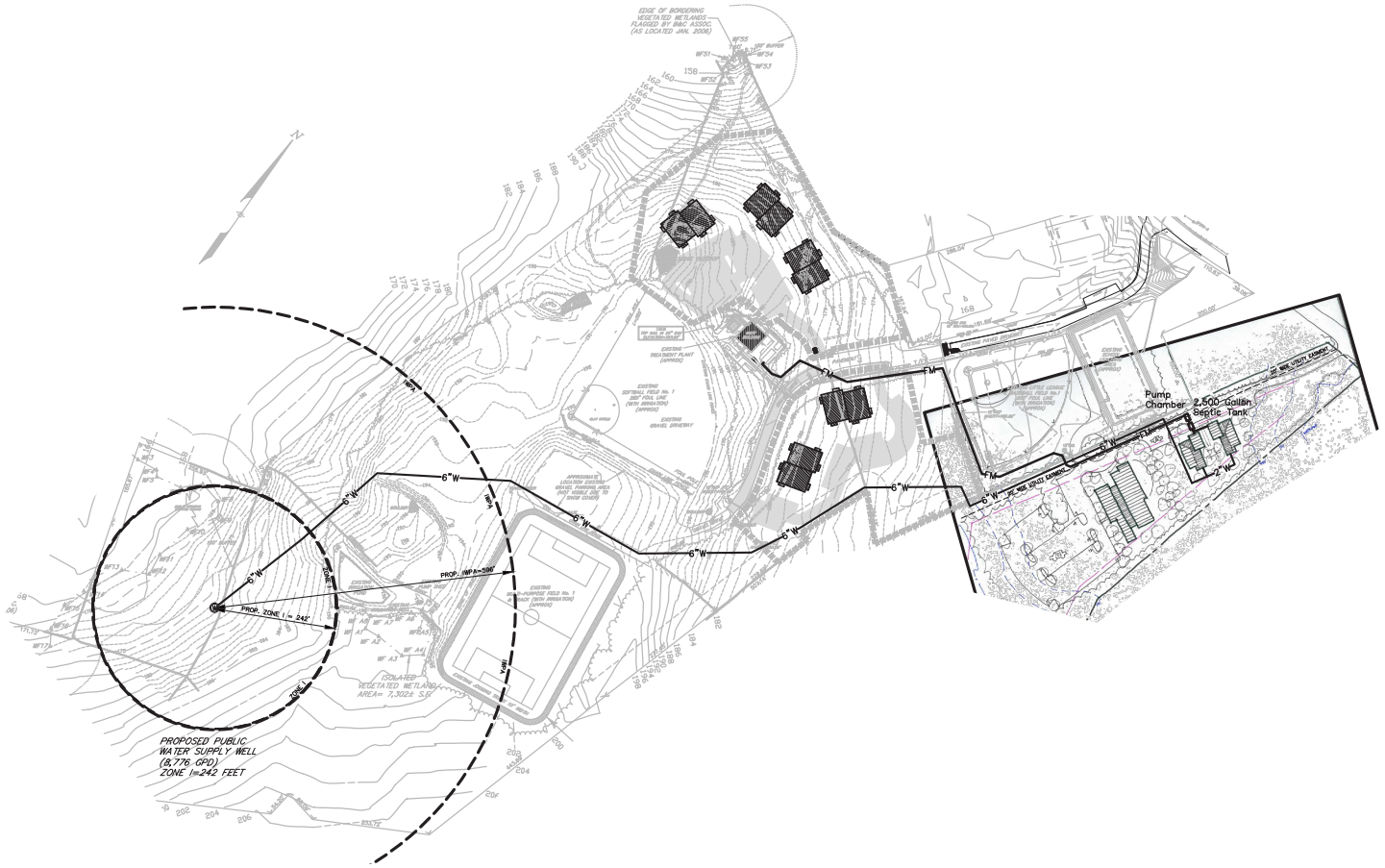
Samiotes Consultants explored septic options with Kevin Brander of DEP (and his subsequent informal discussions with Boston and DEP Legal). Kevin Brander stated that DEP would likely approve the Housing Authority (or other non-Town entity) having sole use of a Title 5 septic system as opposed to tying into the Town's WWTP. The approval of this use option would be dependent on that entity having written into their long-term lease that they "own, operate and maintain" said septic system They would then send that agreement to DEP for their approval to design a system that did not tie into the WWTP. The BOH would then need to approve a Title 5 Septic per their regulations and Title 5.

If a T5 septic system is allowed, the leaching field size would be approximately 2,850 sf based upon 10 bedrooms and soils with good drainage properties. There need to be two fields as illustrated on the plan – one for the primary and one for the reserve (with a 10' separation between them). Each house should also have its own dedicated 1,500-gallon septic tank.

The ability to reduce the septic system (based on the rooms being a "dormitory" use (i.e. 1 person per room as opposed to 2) in lieu of 10 bedrooms should be investigated. As detailed above, we are currently illustrating a leaching field based on bedrooms (100 gallons per day) to be conservative in showing what can be sited for the project with proper setbacks.



Water supply and septic systems for the group homes can be provided adjacent to them if they meet the criteria illustrated. A community center would require provisions for additional systems.



Water supply and septic systems can also be connected to a well and waste water treatment facilities off site. An appropriate decision on these systems should be based on engineering and cost criteria with consideration given to short term and long term development options for the site.

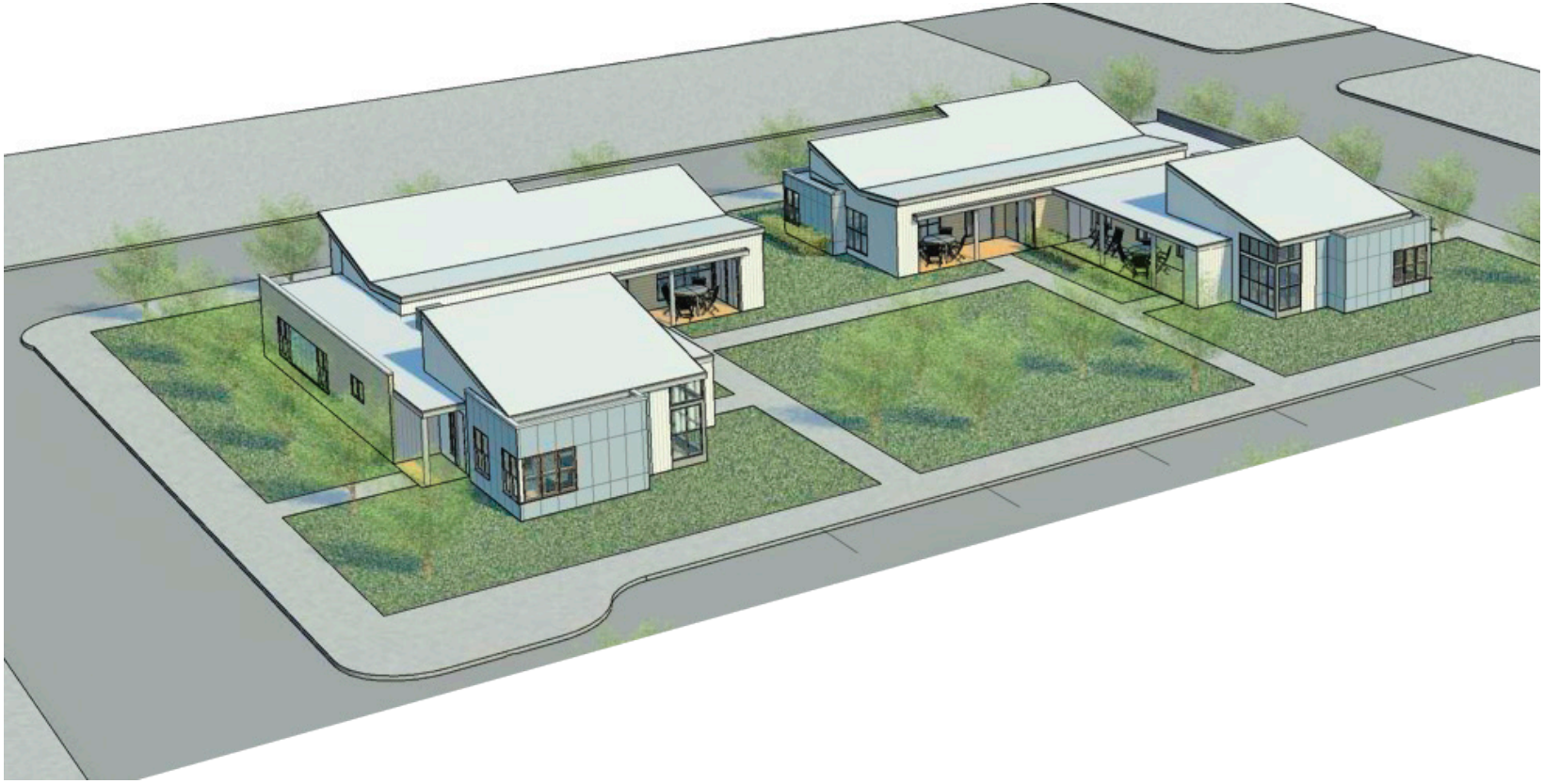
DESIGN GUIDELINES PROTOTYPE: ACCESSIBLE HOUSING, STONEHAM, MA
Clerestory windows bring light into the center of the deep flooplate that one story accessible housing usually requires. South facing windows with deep overhangs provide passive solar heating.

DESIGN GUIDELINES PROTOTYPE: ACCESSIBLE HOUSING, STONEHAM, MA
Pitched roofs reflect a regional verncacular adapted to the low profile of accessible housing. Changes in material help break down the scale of the 2,500 square foot

DESIGN GUIDELINES PROTOTYPE: ACCESSIBLE HOUSING, STONEHAM, MA
Architectural elements such as porches, bays and corner windows create a comfortable enviroment for residents and maintain the domestic scale of the neighborhood.

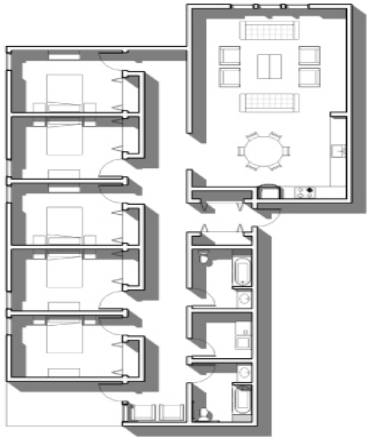
DESIGN GUIDELINES PROTOTYPE: ACCESSIBLE HOUSING, STONEHAM, MA
Natural lighting improves residents' quality of life and reduces energy costs. Clearly defined spaces that open up to one another are comfortable for a single person or a larger group.

DESIGN GUIDELINES PROTOTYPE: ACCESSIBLE HOUSING, STONEHAM, MA
Open spaces allow shared areas to be furnished and utlized in a variety of ways and respond to the specific needs of residents. They also facilitate use by those with mobility impairments.



DESIGN GUIDELINES PROTOTYPE: ACCESSIBLE HOUSING, NEW BEDFORD, MA.
South facing roofs are design to maximize potential for solar photo-voltaic panels or solar domestic hot water. Two five bedroom houses define a shared green space with a comfortable domestic scale.

DESIGN GUIDELINES PROTOTYPE: ACCESSIBLE HOUSING, NEW BEDFORD, MA.
Roofs, walls and windows can be composed to give low but broad accessible housing a comfortable neighborhood scale. Landscaping should tie buildings to the surrounding context.



DESIGN GUIDELINES PROTOTYPICAL FLOOR PLANS
The basic program - 5 bedrooms, living room, dining room, kitchen, two bathrroms, laundry, office and sitting area - can be organized in a variety of ways in response to resident and service provide requirements and the surrounding context.