Westover Air Reserve Base/ Westover Metropolitan Airport
Joint Land Use Study Update

Final Report, October 2004



Prepared by the Pioneer Valley Planning Commission
26 Central St.
West Springfield, MA 01089

Prepared for U.S. Department of Defense,
Office of Economic Adjustment

Table of Contents

Executive Summary 3
Introduction 4
Objectives of the Study 4
Roles of the Participants 4
Technical Explanations 5
AICUZ 5
JLUS 5
Height Limitation 5
APZ/CZ 5
Noise Issues 6
Noise Contours 6
Overview of the Project Process 6
Project Initiation and Organization 6
Concurrent Studies 7
Impact of Westover Air Reserve Base/Westover Metropolitan Airport 8
Military Installation Conflicts 8
History of the Base 9
Economic Impacts 9
Land Use Issues 10
Population Trends 10
Land Use Trends 10
Incompatibilities 11
Action Strategies 13
Potential Development Controls 13
Conservation Partnerships 14
Summary of FAA Part 150 Study Strategies 14
Memorandum of Agreement 15
Legislative Initiatives 15
Land Acquisition in the CZs 15
Appendix A - Summary of Project Tasks 16
Appendix B – GIS Maps including land Use Change 19
Appendix C – Summary Paper on Ground Truth Verification Details 39
Appendix D – Summary Paper on Zoning Review 41
Appendix E – Buildout Spreadsheets and Summary Report 44
Appendix F – Summary Paper on Zoning Recommendations 52
Appendix G – Articles on Land Use Incompatibilities surrounding military bases 55
Appendix H – Press Releases and Web Page Summary 58
Appendix I – Brochure on WJLUS 71
Appendix J – Memorandum of Agreement: Current Draft 73
Appendix K – Model Massachusetts legislative Initiatives 75
Appendix L – WARB JLUS committeemembers 79

Westover Air Reserve Base/Westover Metropolitan Airport
Joint Land Use Study Update
Final Report, October 2004

Executive Summary

Westover Air Reserve Base (WARB) and Westover Metropolitan Airport (WMA) have a long and successful economic history in western Massachusetts. However, along with other military installations and airfields in metropolitan areas, they have increasingly felt the pressure of potentially incompatible development surrounding the airfield. The WARB/WMA airfield is unique in that it is located in close proximity to the largest population center in Western Massachusetts, as well as rural areas susceptible to sprawling residential development. Officials at the Department of Defense and the Federal Aviation Administration were concerned that the incompatibilities could affect airfield operations and the local economy should WARB/WMA have to change operations or relocate. This led to the development, in 1995, of the Westover Joint Land Use Study (JLUS), by the Pioneer Valley Planning Commission.

Following the JLUS report, the communities surrounding WARB were asked to consider regulatory reforms that would serve to enhance joint civilian and military operations at this regionally valuable facility. Although the Town of Ludlow did take action to create a zoning overlay district that restricts sensitive and high intensity uses in Accident Potential Zones (APZs) and noise zones, other municipalities did not follow suit. The lack of adequate dedicated resources to develop specific zoning bylaw revisions in the face of other equally pressing regional and local land use pressures led to inaction. Officials at the Department of Defense Office of Economic Adjustment, WARB, and at Westover Municipal Airport felt it necessary to make another concerted effort to achieve implementation of JLUS, which led to the 2004 Update.

The JLUS Update coincided with an update of Noise Exposure Maps (NEM), developed for the Federal Aviation Administration (FAA) by HNTB Corporation. The updated land compatibility maps in the JLUS Project include the results of the NEM update.

The 2004 Westover JLUS Update serves to remind local residents and municipal officials of the importance of the joint use facility to the employment and economic well-being of the region. Land use analysis, physical mapping, regulatory evolution, and ultimately, consensus building among those affected communities and organizations impacted by WARB will all contribute to an improved and enhanced environment for future aviation operations at Westover.

As can be seen in the JLUS Update Report that follows, there is still work to be done on modifying land incompatibilities. This work continues in the municipalities themselves and on the Commonwealth level, as zoning bylaw changes, legislative initiatives and emergency management policies are formulated.

Introduction

The original Westover Joint Land Use Study (WJLUS) began in 1990 with the joint decisions of six cities and towns and Westover Air Reserve Base/Metropolitan Airport. The Westover facility is operated under a joint us agreement with the Department of Defense (DoD) and the Westover Metropolitan Development Corporation (WMDC). WMDC manages the civilian operations at Westover, which include scheduled charter flights and general aviation traffic, while the Air Force Reserve oversees the military operations at the facility.

The first WJLUS lasted over three years, with its focus being noise delineations and accident potential and the impacts of these on development. The data that initially drove the study came from that Air Installation Compatible Use Zone (AICUZ) study, which was completed in 1990. The original report mapped noise contours and Accident Potential Zones (APZs) and made recommendations for the types of development that were compatible with military operations.

The 1995 JLUS was completed, but not implemented to a large degree by the participating communities. The primary reasons for the lack of implementation were the absence of funding and staff support to communities. Funding for communities was not available after the study was completed, and at that time communities did not see the value of adopting JLUS recommendations on their own. Further, some of the participating communities did not have professional planning staff to assist them in developing zoning or other regulations. Therefore, the Department of Defense, Westover base officials, and the Westover Metropolitan Development Corporation considered an update and implementation of the 1995 Westover Joint Land Use Study timely. Work began in December 2001 and the final report was completed in October 2004.

Objectives of the Study

This update was meant to:

- explore and verify the land use changes since the previous JLUS study
- continue and expand communication between the airfields and the affected communities
- publicize the positive and negative impacts of the airfields
- update Accident Potential Zone and incorporate noise maps
- create collaborations between communities
- encourage legislative initiatives to promote compatible development.

Roles of the Participants

WMDC sponsored and is responsible for the oversight of the Part 150 Noise Compatibility Study Update, which was completed concurrently with the JLUS. The Noise Exposure Maps (NEM) have been published and the next steps will be implementing the FAA-approved noise reduction measures defined in the 1994 Noise Compatibility Plan (NCP). The original Part 150 Noise Compatibility Study was completed in October 1994 and received full FAA approval in August 1995. The NEM update was completed in January 2004.

The Department of Defense (DoD) Office of Economic Adjustment (OEA) funded the

JLUS Update, and Westover Air Reserve Base is a stakeholder in the results of the study, as is the Westover Metropolitan Development Corporation (WMDC), which manages Westover Metropolitan Airport (WMA). Pioneer Valley Planning Commission (PVPC) prepared the products in this report and collaborated with WARB, WMDC, and the affected municipalities to implement the strategies laid out in this report.

Technical Explanations

AICUZ
The Air Force Handbook (AFH) 32-7084, updated in March 1999, specifies the purpose and need for Air Installation Compatible Use Zone (AICUZ) studies, as well as the process, procedure, and guidelines. The AICUZ program has two objectives. The first is to assist local, regional, state and federal officials in protecting and promoting the public health, safety and welfare by promoting compatible development within the AICUZ area of influence. The second is to protect Air Force operational capability from the effects of land uses that are incompatible with aircraft operations.

AICUZ reports describe three basic types of constraints that affect, or result from, flight operations. The first constraint involves areas that the Federal Aviation Administration (FAA) and DoD have identified for height limitations. The second constraint involves noise zones plotted in increments from 65 decibels (dB) to over 80 dB. Over 65 dB noise exposure is considered to be significant and use of land normally should be limited to industrial, manufacturing and transportation and resource production. Detailed information for Westover Air Reserve Base (WARB) is available under separate cover, in the HNTB report preprared for WMDC. The noise exposure area over 65 dB coincides roughly with that covered by the third constraint, which involves accident potential zones based on statistical analysis of past DoD aircraft accidents.

JLUS
Managed by the DoD Office of Economic Adjustment (OEA), JLUS is a cooperative land-use planning effort between affected local government and the military installation. The recommendations developed from the JLUS provide the policy framework to support adoption and implementation of compatible development near a military installation. Compatible development will safeguard the military mission and protect the health, safety and welfare of the public. JLUS operates under the premise that local land-use planning and zoning is one of the most effective tools available to resolve incompatible development issues, short of cost-prohibitive land acquisition strategies.

Height Limitation
Federal Aviation Regulation Part 77 establishes standards for determining obstructions to air navigation and applies to existing and proposed manmade objects, objects of natural growth, and terrain. The standards are intended to limit the height of buildings and other structures in the vicinity of the airfield in order to insure the safety of pilots, aircraft and individuals and structures on the ground.

APZ/CZ
The Air Force completed a study of Air Force accidents that occurred between 1968 and 1995 within 10 nautical miles of airfields. The study considered 838 accidents and revealed that 68 % occurred on or adjacent to the runway in a corridor 3,000 feet wide. Based on this type of

accident data, the Air Force identified three accident potential zones; the Clear Zone (CZ), Accident Potential Zone I (APZ-I), and Accident Potential Zone II (APZ-II). The CZ is at either end of a runway and measures 3,000 feet by 3,000 feet in area. Within the CZ, the potential for accidents is the greatest (27.4%). Within the CZ area there should be no above-ground structures of any kind, and land-use activity should be severely limited only to agriculture (excepting livestock).

APZ-I is a rectangle 5,000 feet long by 3,000 feet wide, where the study found that 10.1% of aircraft accidents occurred. Within the APZ-I, suggested land uses are limited to manufacturing, transportation and communications, trade, automotive sales, services and agriculture. Lower densities of permitted activities are also suggested. Residential land uses of any type are not recommended, nor are places of assembly, schools, hospitals, child or adult care facilities, and so forth.

APZ-II is the farthest accident potential zone from the end of the runway and is 7,000 feet long by 3,000 feet wide. The study found that only 5.6% of accidents occurred in this zone. Recommended land uses and densities are less stringent than the previous zones. Severely limited residential uses are recommended at maximum densities to one to two units per acre. Multifamily, townhouse or apartment dwellings are not considered compatible in APZ-II. Neither are hospitals, nursing homes, educational services, or eating and drinking establishments.

Noise Issues

Code of Federal Regulations, Part 256 of Title 32, states that the daytime sound level (DNL) will be used to assess the impact of noise from air installations. DNL averages aircraft sound levels at a location over a complete 24-hour period, with a 10-decibel adjustment added to those noise events that take place between 10:00 PM and 7:00 AM. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extreme quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Many local noise ordinances include limiting noise exposure in residential zones to 55-60 dB at the property line.

Noise Contours

Noise contours are plotted in increments of 5 dB from 65 decibels (dB) to over 80 dB. Over 65 dB noise exposure is considered to be significant and use of land normally should be limited to industrial, manufacturing and transportation and resource production. Detailed information for WARB is available in the separate report prepared by HNTB. The noise exposure area over 65 dB coincides roughly with the APZ and CZ zones.

Overview of the Project Process

Project Initiation and Organization

After all project initiation paperwork was completed, PVPC staff began the project for the JLUS Update in December 2001.The JLUS Update is comprised of six tasks, which are explained in detail in Appendix A.

Task 1 involved GIS mapping and verifying land use data from the previous JLUS study. As this task was not dependent on public input and collaboration, it was one of the first tasks completed, in early 2002. The GIS maps and summary paper on actual comparisons on the ground are included in Appendices B & C.

Task 2 involved various aspects of zoning review and work began in early 2002. PVPC staff reviewed the local zoning and subdivision regulations in each community in the study area and prepared a summary paper explaining the incompatibilities in detail. The summary is included in Appendix D. Staff simultaneously prepared a 5-year buildout analysis of the study area, projecting development impacts from a 1-mile zone surrounding the APZs. This analysis is included in Appendix E. Task 2 culminated with a summary paper identifying zoning needs and suggested changes for development control, which is included in Appendix F.

Task 3 involved a community outreach effort and began with a public meeting introducing the JLUS Update in February 2002. PVPC and WARB have JLUS Update details on both websites and links from one website to another. The PVPC website includes GIS maps of JLUS and noise study, NEM study recommendations, brochure on airfield impacts, model Memorandum of Agreement for communities, model MA legislative initiative, buildout results, and a model overlay district bylaw. Press releases, web page summary and meeting agendas are included in Appendix H; the brochure on WARB and JLUS is included in Appendix I. Additionally, PVPC staff met with all the planning officials in the affected communities over the timeframe of the study. Planning staff and boards were provided with APZ and noise maps and agreed to consider land use incompatibilities in future community development.

For Task 4, PVPC agreed to provide continuing zoning and mapping technical assistance to affected communities. The zoning assistance has been and continues to be focused on drafting and adopting recommended zoning changes, such as overlay districts with development controls within the APZs and high noise areas, and deed disclosure for developments within the APZs and areas within the contour of noise over 60 dB. This process is ongoing and will take some time to complete. PVPC also agreed to provide, free of charge, the GIS maps including the APZs and noise contours.

Community outreach continued to be an important component of the study with Task 5, creating a Memorandum of Agreement (MOA). PVPC staff met with planning boards and staff of all affected communities to discuss the feasibility of the MOA. All communities agreed to the tenets of the MOA – protecting public health, safety and welfare; protecting national investments in Westover base; and ensuring continued job growth at the base – and determined to make commitments toward achieving these goals. A model MOA is included in Appendix J.

Task 6 involved state legislative initiatives, which have been a major tool for resolving land use incompatibilities in other states. PVPC staff prepared a legislative initiative to be presented by each town to their attendant representatives. These, as well as the model, are included in Appendix K.

Concurrent Studies

In conjunction with the Westover JLUS, HNTB Corporation developed a Noise Exposure Map Update for the Federal Aviation Administration and completed it in January 2004. The FAA Part 150 program is comprised of two elements, Noise Exposure Map (NEM) Updates and a Noise Compatibility Plan (NCP). The NEMs identify the number of people and incompatible land uses that exist in the communities around the airfield. The NCP is designed to reduce the number of people

and/or incompatible land uses as defined by the NEMs, and includes sound insulation and land acquisition measures.

FAA Part 150 requires the use of Day-Night Average Sound Level (DNL) contours to describe the noise environment around an airfield. HNTB developed the existing operational data for the year 2003, which models conditions during the year in which the NEMs were filed with the FAA; and forecast future noise contours for the year 2008, which models conditions in the fifth year following the year of submission.

HNTB also did a land use compatibility analysis in relation to noise contours within 65 dB, 70 dB, and 75 dB and higher ranges. Incompatible land uses are similar to those found by the JLUS Update and include residences, schools, hospitals, and churches.

The NEMs were completed and made public in January 2004. The 1994 NCP is available; however, the NCP Update is not yet published.

Impact of Westover Air Reserve Base/Westover Metropolitan Airport

WMA and WARB is a joint military and civil aviation facility located in Chicopee, MA, at the confluence of three major highways – I-90, I-91 and I-391 – and two major rivers, the Connecticut and the Chicopee Rivers. Classified as a General Utility I Airfield providing comprehensive aviation services to commercial businesses, private corporations, and air charter operations, WARB/WMA is the largest facility in the Pioneer Valley region.

Westover Airfield consists of 2,500 acres of land with two active runways. Westover's primary runway runs northeast/southwest and is 11,600 feet long and 300 feet wide. This runway is the longest in the Eastern U.S. and can handle any aircraft now operating, including the Space Shuttle. The secondary runway is 7,050 feet long and 150 feet wide and crosses the primary runway, running northwest/southeast.

WARB serves as the home of the C-5A Strategic Airlift Training Mission conducted by the Air Force Reserve 439th Airlift Wing. Sixteen (16) C-5As are based at WARB for this purpose. The C-5A Galaxy Cargo jet has a wing span of 222 feet, a length of 247 feet, 10 inches; a height of 65 feet, 1.5 inches; and a payload of 250,000 pounds. WMDC has 57 tenants that base their private planes at Westover Metropolitan Airport.

Westover Metropolitan Airport is a 14,600 square foot passenger terminal that opened in 1988. The airport can handle up to 300 passengers per hour and handles both passengers and cargo. It operates only during the daylight hours. WARB has as its basic mission training C-5A aircrews and maintenance, and continues to operate training flights generally on Tuesdays and Thursdays and occasionally on weekends. Since the beginning of Operation Enduring Freedom, WARB has served as a staging stop for flights to the Middle East, which have no set pattern.

Military Installation Conflicts

Most Air Force installations were built in the 1940's and early 1950's in relatively remote areas for frontier defense and security purposes. However, these installations are no longer isolated islands. They generate considerable economic activity that attracts people and businesses ever closer to take advantage of job opportunities and to provide goods and services needed to support the installation. Eighty percent of our nation's military

installations are experiencing urban growth at a rate higher than the national average. Problems result when complaints over the effects of aircraft operations (e.g. noise, overflight, etc.) lead to operational changes that negatively impact the flying mission. Incompatible encroachment contributed to the cessation of flying missions at installations such as Lowry AFB in Colorado, Chanute AFB in Illinois, and Laredo AFB in Texas, all of which have now closed as part of Base Realignment and Closure (BRAC).

History of the Base

Westover Air Reserve Base began as a northeastern U.S. fortification base during World War II. It was dedicated in April 1940. During the rest of the war it served as the training center for anti-submarine, engineering, and chemical platoons and for bomber and fighter groups. In February 1946, Westover became an Air Transport Command (ATC) base, which meant that it was the terminus for air routes around the world. C-54 and C-47 transport planes took supplies and reinforcements to deployed armed forces and returned with wounded and discharged troops. Westover was also the launching airfield for the historic Berlin Airlift for 327 days during the Russian blockade. Altogether, the C-54s and C-47s flew 276,926 missions, bringing an average of one ton of supplies and food to each Berlin resident.

In 1955 Westover became a Strategic Air Command (SAC) base. The 99th Bomb Wing kept bombers and tankers on ground alert at all times, and SAC crews lived on 24-hour alert. Nuclear weapons were stored in the Stony Brook section of the base and planes loaded with these devices were on the ground ready to take off instantaneously.

In 1967, SAC crews were sent to Vietnam on B-52 bombing missions and anti-war activists began protesting the war on a daily basis at Westover's main gate. In 1973, after Vietnam, part of the base was sold and in 1974 the remainder was turned over to the Air Force Reserve.

After May 1974, the 439th Tactical Wing operated C-130 Hercules and C-123 Provider aircraft. The base converted to C-5As in 1987 and these have been the primary aircraft out of WARB since that time. Besides regular training runs, generally on Tuesday s and Thursdays and some weekends, the C5As have been used as transport for humanitarian missions and, most recently, for wartime missions during Desert Shield/Desert Storm and operations Iraqi Freedom and Enduring Freedom.

Also in 1974, an act of the Massachusetts legislature created the Westover Metropolitan Development Corporation (WMDC). Approximately half the total acreage of the original air force base was transferred to WMDC. The WMDC mission is the development and oversight of industrial parks on the 1,300 acres under its jurisdiction. As previously mentioned, the civilian component of Westover airfield is the Westover Metropolitan Airport (WMA). WMDC has developed three industrial parks and a modern passenger terminal since its inception. WARB and WMA coexist at the same facility and use the same runways; this arrangement is known as "joint use" and occurs at several locations throughout the U.S.

Economic Impacts

WARB/WMA is comprised of over 2,500 acres, which makes WARB the largest Air Force Reserve base in the U.S. The base is the closest fully operational military installation to Europe, giving it a strategic advantage in military operations. WARB added more than $183 million to the

economic gain in western Massachusetts during the fiscal year from 2002-2003. The base's total salary for the year was $103,204,849 with military pay making up the largest portion. Much of this came from the more than 1,000 reservists who were activated during Operations Iraqi Freedom and Enduring Freedom. Civilian salaries stood at $33,953,294, while civilian contractors and employees at the base exchange, shoppette, Westover Club and billeting office took home another $2,105,139.

The total number of people employed on the base in 2003 was 3,607, including 2,567 active-duty and reserve military personnel. Also employed on base were 770 federal employees and 270 contract and non-appropriated funds workers.

Construction projects contributed $5,400,253 to the total economic gain, while service contracts added another $19,566,210. Other expenditures, which included materials and supplies, capped out at $20,520,859. As a result of the base population, the Air Force calculated that an estimated 988 jobs were created in the local area, resulting in an annual payroll of $34,850,712.

Land Use Issues

Population Trends

As can be seen from the table below, the population in some communities around the airfield is projected to grow – some significantly – and in other communities it will continue to decrease. Of particular concern is the population growth in Granby and Ludlow, which coincides with an increase in the demand for residential housing. Current zoning in all communities in the study area allows residential development of some manner in portions of the study area. As residential development of any type is not recommended in the CZ or APZ-I, and only low density residential development in recommended in APZ-II, exercising proper development controls in the study area is especially vital.

However, the rate of change for all of Hampden County, which includes Chicopee, Ludlow, and Springfield, is just 1%. For Hampshire County, which includes Granby and South Hadley, it is 1.9%. This indicates that the population distribution in the Pioneer Valley is fairly consistent and may indicate that the population simply shifts between communities.

	1980	**1990**	**2000**	**2006**	**Rate of Change**
Chicopee	55,112	56,632	54,653	53,517	-3.49%
Granby	5,380	5,565	6,132	6,517	+10.2%
Ludlow	18,150	18,820	21,209	22,876	+12.7%
South Hadley	16,399	16,685	17,196	17,514	+3.1%
Springfield	152,319	156,983	152,082	149,255	-3.1%

Source: U.S. Census

Land Use Trends

More significant than population is the shift in land use over time. The increase in developed land is greatest in the communities with available land, especially Granby and Ludlow. Although only a portion of these communities lies within the study area, there is particular concern about incompatible land uses in these communities. The majority of the development in Granby and

Ludlow has been residential. The development in the study area portion of Chicopee, South Hadley and Springfield is a mix of business and residential uses.

	Undeveloped Land in 1971 (acres)	**Undeveloped Land in 1999 (acres)**	**Change from Undeveloped to Developed Land, 1971-1999 (acres)**	**Percent Increase from Undeveloped to Developed Land, 1971-1999**
Chicopee	5,956	5,189	767.29	8%
Granby	15,954	14,971	983.01	48%
Ludlow	13,936	12,442	1493.39	36%
South Hadley	8,655	7,854	800.93	25%
Springfield	6,484	5,412	1,071.97	7%

Source: Mass GIS

As can be seen by the table above, a total of 5,115.59 acres of land have been developed in the communities surrounding the WARB/WMA airfields. Housing, usually single family detached homes, is the most prevalent land use in the Pioneer Valley.

Incompatibilities

As is evident from the trends just explained, military bases and airfields in general have become constrained and conflicted with other uses. The AICUZ Manager's Manual specifically forbids certain types of development in the Clear Zone and Accident Potential Zone I. The tables below list the types of recommended uses for both the Accident Potential Zones and the noise zones.



Most conflicts with airfields arise from noise complaints, but other issues can be light, traffic, and safety. Below are a few photos taken in the study area, which show the incompatible uses.



Chicopee manufacturing in study area south of Westover



Ludlow housing in study area north of Westover



Housing in Chicopee near St. James Westover gate

Optimal Land Use in Accident Potential Zones			
Generalized Land Use	***Clear Zone***	***APZ I***	***APZ II***
Residential	No	No	Yes – I unit per acre
Manufacturing	No	Yes – low density, low intensity	Yes – low density, low intensity
Transportation, Communications & Utilities	No	Yes – low density, low intensity	Yes – low density, low intensity
Trade, Business and Offices	No	Yes – low density, low intensity	Yes – low density, low intensity
Shopping Districts	No	No	Yes – low density, low intensity
Public & Quasi-Public Service	No	No	Yes – low density, low intensity
Recreation	No	Yes – low density, low intensity	Yes – low density, low intensity
Public Assembly	No	No	No
Agriculture	Yes – very limited, no livestock	Yes – low density, low intensity	Yes – low density, low intensity

Source: AFH 32-7084

Optimal Land Use in DNL Noise Contours			
Generalized Land Use	***65-69 dB***	***70-74 dB***	***75-79 dB***
Residential	No, unless sound attenuation measures are installed	No, unless sound attenuation measures are installed	No
Manufacturing	Yes	Yes	Yes
Transportation, Communications & Utilities	Yes	Yes	Yes
Trade, Business and Offices	Yes	Yes	Yes
Shopping Districts	Yes	Yes	Yes
Public & Quasi-Public Service	Yes	No, unless sound attenuation measures are installed	No
Recreation	Yes	Yes	No
Public Assembly	Yes	No	No
Agriculture	Yes	Yes	Yes

Source: AFH 32-7084
(NOTE: All noise contours over 80 dB are located on the military facility)

Action Strategies

Potential Development Controls
Zoning provides a major tool for controlling land use in local communities. Zoning overlay districts offer an option to communities in the study area, providing a more flexible development

control than that of changing the allowed uses in entire zoning districts and focusing on only the portion of the community with potential incompatible land uses. Overlay zones are intended to modify but not eliminate underlying zoning.

With appropriate state legislation in place, an overlay district could prohibit all development in CZs, and residential development and manufacturing that causes dust or other sight reductions in APZ Is. It could also prohibit schools, churches, nursing homes, hospitals and day care in the study area in certain instances. Without special legislation, an overlay district could accomplish some but not all of these controls.

A provision encouraging real estate disclosure in the study area for each community (Chicopee, Granby, Ludlow, South Hadley and Springfield) would inform prospective buyers of property about the existence of a special condition on the subject property. In this case, the Registrar of Deeds in each community would advise buyers in the study area of Accident Potential and/or noise issues.

Conservation Partnerships

Good and reliable communication about land development and redevelopment between Westover Air Reserve Base, Westover Metropolitan Airport officials and community officials and representatives is imperative in creating an optimal environment for viable airfield operations.

WARB/WMA could develop good relationships with nonprofit conservation organizations whose efforts would help preserve sensitive natural areas. The National Defense Authorization Act for Fiscal Year 2003 allows the Secretary of Defense to enter into agreements with a state, local government, or land preservation group to acquire or accept, on a cost-shared basis, property around a military installation to "address the use or development of real property that would be incompatible with the mission of the installation."

Efforts to preserve areas most sensitive to incompatible development should begin with local conservation organizations active in the study area. The purposes of many local conservation groups would appear to in accordance with those of WARB. For example, the mission of local groups such as the Kestrel Trust and Valley Land Fund is to preserve natural habitat for endangered species while the training mission of WARB requires undeveloped land around the installation for aircrew safety and base security. Therefore, partnerships between these groups would result in mutually beneficial outcomes.

Summary of FAA Part 150 Study Strategies

HNTB divided study area maps into noise contours of below 65 dB, 65-75 dB, and over 75 dB, both for current operations and 2008 future projections for the FAA. The NEM update will use the federal Part 150 noise guidelines to assist in identifying potential land use incompatibilities for the NCP. Future strategies could include land acquisition and sound insulation treatments.

Local representatives were invited to regional public meetings where the study area maps were displayed. The public reviewed and commented on these maps, which included potential areas

of concern such as hospitals and places of worship. After the public comments were incorporated, the maps were corrected and reproduced for the final report.

Memorandum of Agreement

All municipalities in the study area could sign a Memorandum of Agreement (MOA) in order to protect land from incompatible development. MOAs, such as the example provided in Appendix J, would provide the framework for a cooperative agreement between impacted municipalities to coordinate compatible land development in APZs and noise zones. MOAs would recognize the value of the airfield to the region and provide a forum for ensuring that community and airfield concerns are addressed in the planning process. The MOA would establish an intermunicipal committee that would work with the regional planning agency to monitor projects with regional impact.

Legislative Initiatives

PVPC and communities in the study area could jointly develop a Massachusetts legislative initiative to designate the study area as an "Area of Critical State Concern", requiring state approval for major development projects that could have regional or statewide impacts. Massachusetts could require standards for the areas in the APZs and noise zones, including public health and safety and traffic congestion.

Communities in the study area could also encourage their local legislators to introduce a Massachusetts legislative initiative to rescind the exemption in state zoning for educational institutions or churches in all communities in the study area, thus allowing for their prohibition.

Land Acquisition in the CZs

The Department of Defense could consider outright purchase of that portion of the study area not on base but in the CZ, which consists of 34 acres, for control of property and airfield stewardship. Several states have also set aside a combination of federal, local, and private funds for this purpose, including Oklahoma, Florida, Nevada, Colorado, and California.

Appendix A - Summary of Project Tasks

Task #1 – Review of Land Use and Development Trends

a) GIS Mapping

The PVPC GIS department prepared land use data and incorporated it into maps for the study area, which includes portions of the five communities of Chicopee, Granby, Ludlow, South Hadley and Springfield. The maps include land uses and change, zoning, buildout, and noise contours in the Accident Potential Zones (APZs) and Clear Zones (CZs) and for a one-mile study area around the APZs and CZs. Also included is the orthophoto of the study area with the noise contours, APZs and CZs highlighted. The land use change map illustrates development changes since the previous JLUS study. Also included are local zoning and land use change maps demonstrating impacts of local zoning and growth in the above-mentioned communities. The maps are included in Appendix B.

b) Ground Truth Verification

PVPC land use and GIS staff made site visits to the study area to document and verify the land use changes indicated by the GIS data. The land use changes in the study area did not result in significant new incompatible residential or business growth. The summary paper containing details is in Appendix C.

Task #2 – Zoning Review

a) Review Existing Local Zoning Regulations

PVPC reviewed existing zoning and subdivision regulations in the five communities in the study area to determine the extent of development restrictions. The summary paper explaining the potential land use conflicts on developable land in each community, along with recommendations for conflict resolution, is in Appendix D.

b) Complete five-year projected Buildout Analysis for Study Area

PVPC completed an analysis of projected buildout impacts for the APZs in Chicopee, Granby, Ludlow, Springfield and South Hadley. The five-year buildout projections were based upon the Massachusetts Executive Office of Environmental Affairs buildout analysis standard methodology, with specific, quantifiable outcomes charted and mapped. The spreadsheets are included in the Appendix E.

c) Identification of Zoning Needs including Recommendations of Part 150 Study

Based upon the current land use pattern in the APZs and noise zones, the results of the zoning study, and the buildout analysis, PVPC identified zoning and subdivision issues for each of the study communities. PVPC staff prepared recommendations for zoning improvements based upon

the foregoing information and the recommendations from the previous JLUS study of 1995. The summary paper of these recommendations is contained in Appendix F.

Task #3 - Community Outreach

a) Meetings with Planning Boards and other Boards

PVPC initiated meetings with the Planning Boards, planning staff, and other relevant Boards for each of the communities within the study area. PVPC staff met with Planning Boards in Granby, South Hadley, and Ludlow, and with planners in South Hadley, Chicopee and Springfield, presenting buildout, noise and APZ maps and land use planning results. Four of the participating communities agreed to consider potential zoning recommendations as laid out in Appendix F, as well as a Memorandum of Agreement (MOA) to prevent incompatible land use in the APZs as further detailed in Task 5. The MOA will be an ongoing process, seeking additional commitments by signatories (elected officials).

b) Press releases and Web Page Summary on Study Results

PVPC provided press releases of the kickoff of the study and for the publishing of the study results, which are provided concurrently on the PVPC website. The study results are also published on the Westover ARB website, with links provided by both agencies. PVPC staff and staff from HNTB, which published the noise study results, shared meeting data and information on land use compatibility. Project updates are also included. The press releases and web page summary are included in Appendix H.

c) Brochure on Airfield Impacts

PVPC worked with officials from the Public Affairs office on Westover ARB to produce a brochure that describes both the positive and negative impacts of WARB. It includes a history of Westover ARB in the community and the economic benefit WARB provides for the region. The brochure is included in Appendix I.

Task #4 – Ongoing Technical Assistance to Planning Boards

a) Assistance with Zoning improvements in the Study Area Communities

PVPC staff will continue to work with the Planning Boards and planning staff in Chicopee, Granby, Ludlow, South Hadley and Springfield in order to draft and adopt overlay districts with development controls for educational organizations, nursing homes and hospitals in the APZs and areas within the over 65 Ldn noise contours. PVPC staff will also continue to discuss preventing residential development in the CZ or APZI in all communities, as well as manufacturing uses that might interfere with normal aircraft operations. These would include uses that create dust, smoke or steam, or strong electrical currents.

b) GIS mapping – Local Technical Assistance

PVPC GIS staff will also continue to provide detailed maps that will incorporate the proposed overlay districts, as well as the APZ and noise contours. These maps will be printed 3' X 4' and laminated for suitable use in planning offices.

Task #5 – Memorandum of Agreement and Community Approval

PVPC found agreement and approval between the towns in the study area to sign a regional compact to protect lands in the APZs and noise zones from incompatible uses. The model MOA is included in Appendix J.

Task #6 – State Legislative Initiatives

PVPC staff prepared a model state initiative similar to the one that enabled the currently successful aircraft overlay district in Ludlow. PVPC staff also prepared the initiative for each community and its attendant representative. The initiative allows prohibition of schools, churches and day care centers in the APZs and noise zones and requires deed disclosure of accident potential and noise concerns in the APZs and over 65 Ldn noise contours. The model legislative initiatives are included in Appendix K.

Appendix B – GIS Maps including land Use Change

Westover Joint Land Use Study

Study Area and APZ/Clear Zones

April 2001 Color Orthophotos
Massachusetts Executive Office of Environmental Affairs,
MassGIS, 251 Causeway Street, Suite 900
Boston, MA 02114
www.state.ma.us/mgis

1 0.5 0 1 Miles

N W E S

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

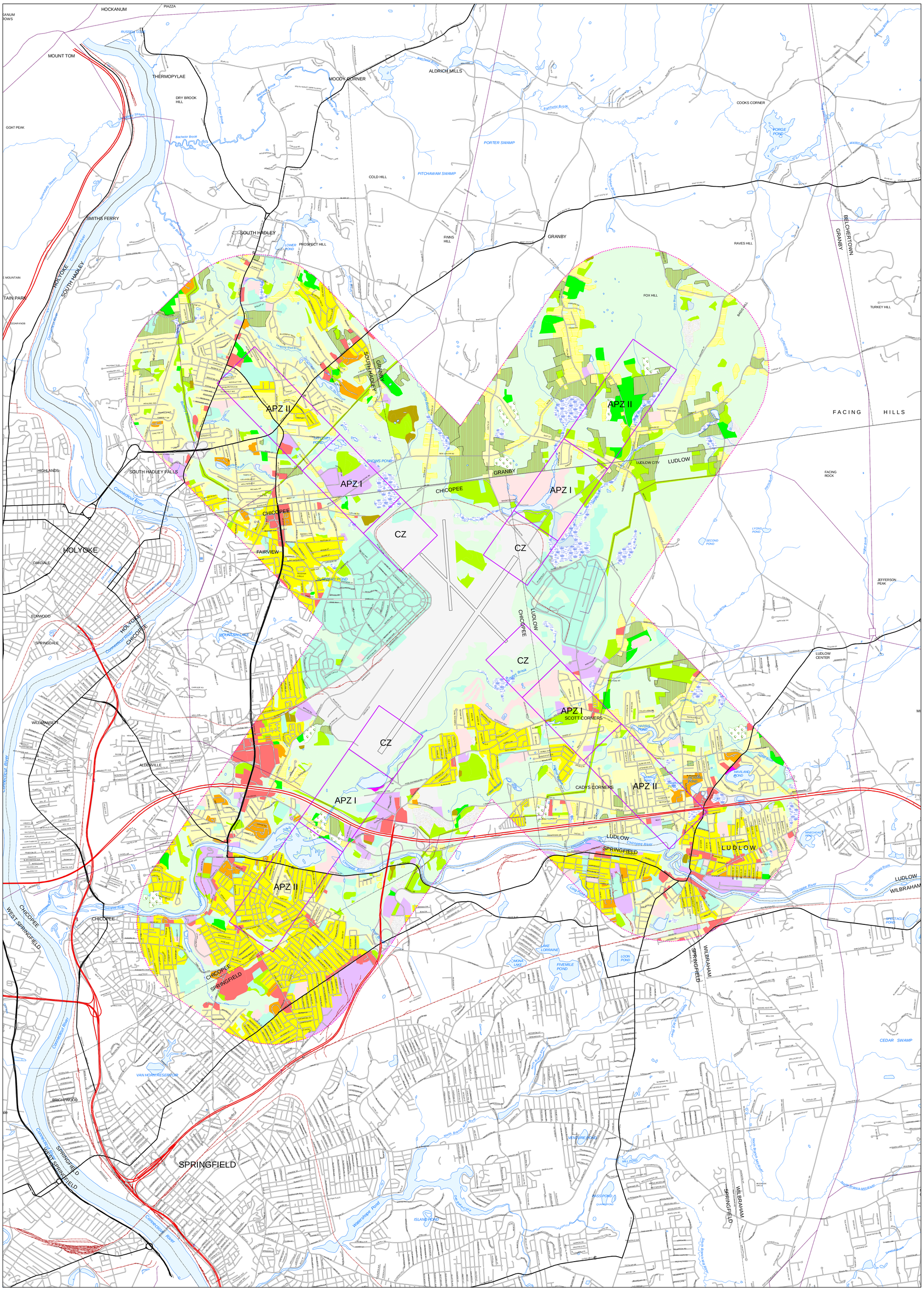
Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.

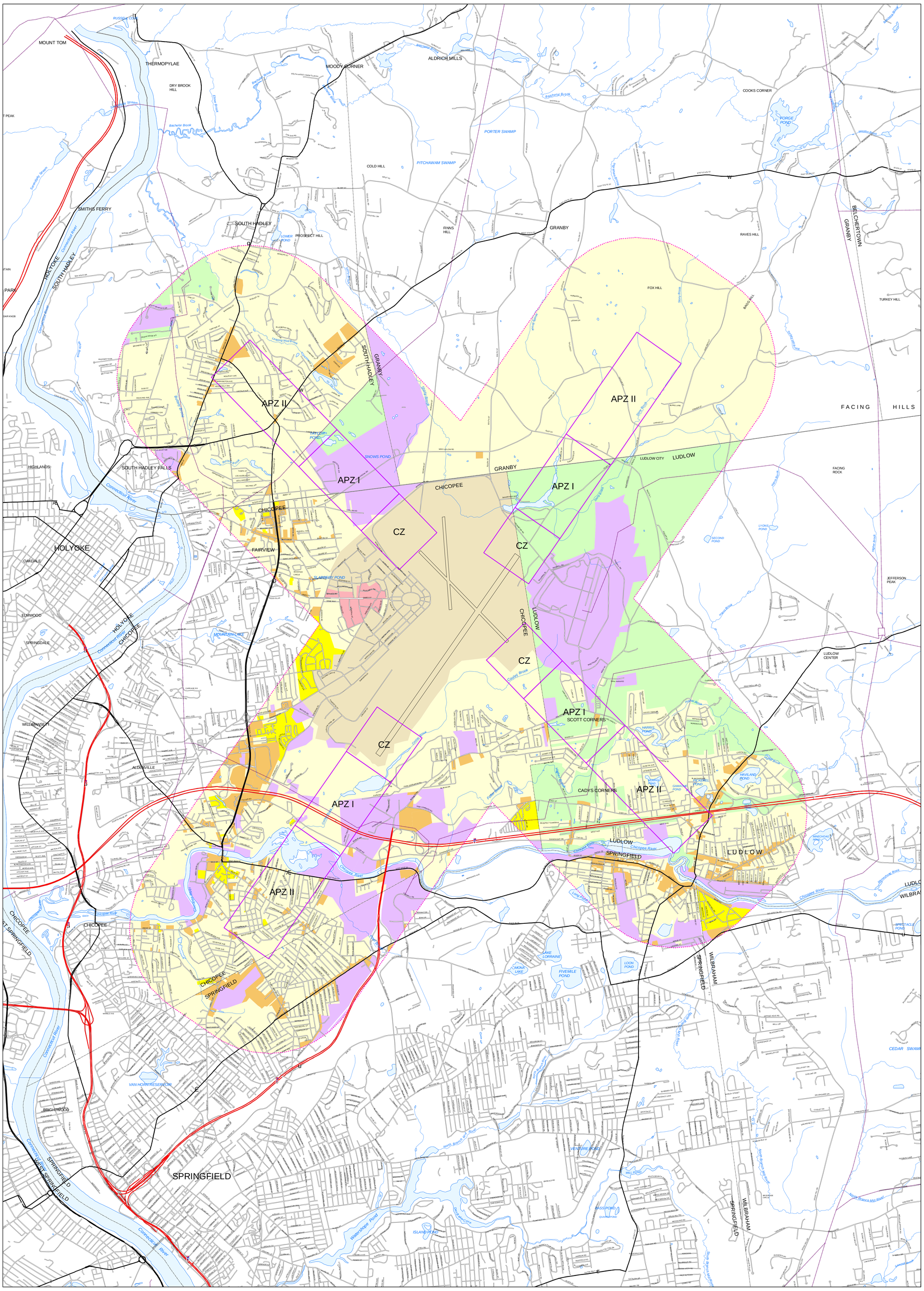
Project funded by:

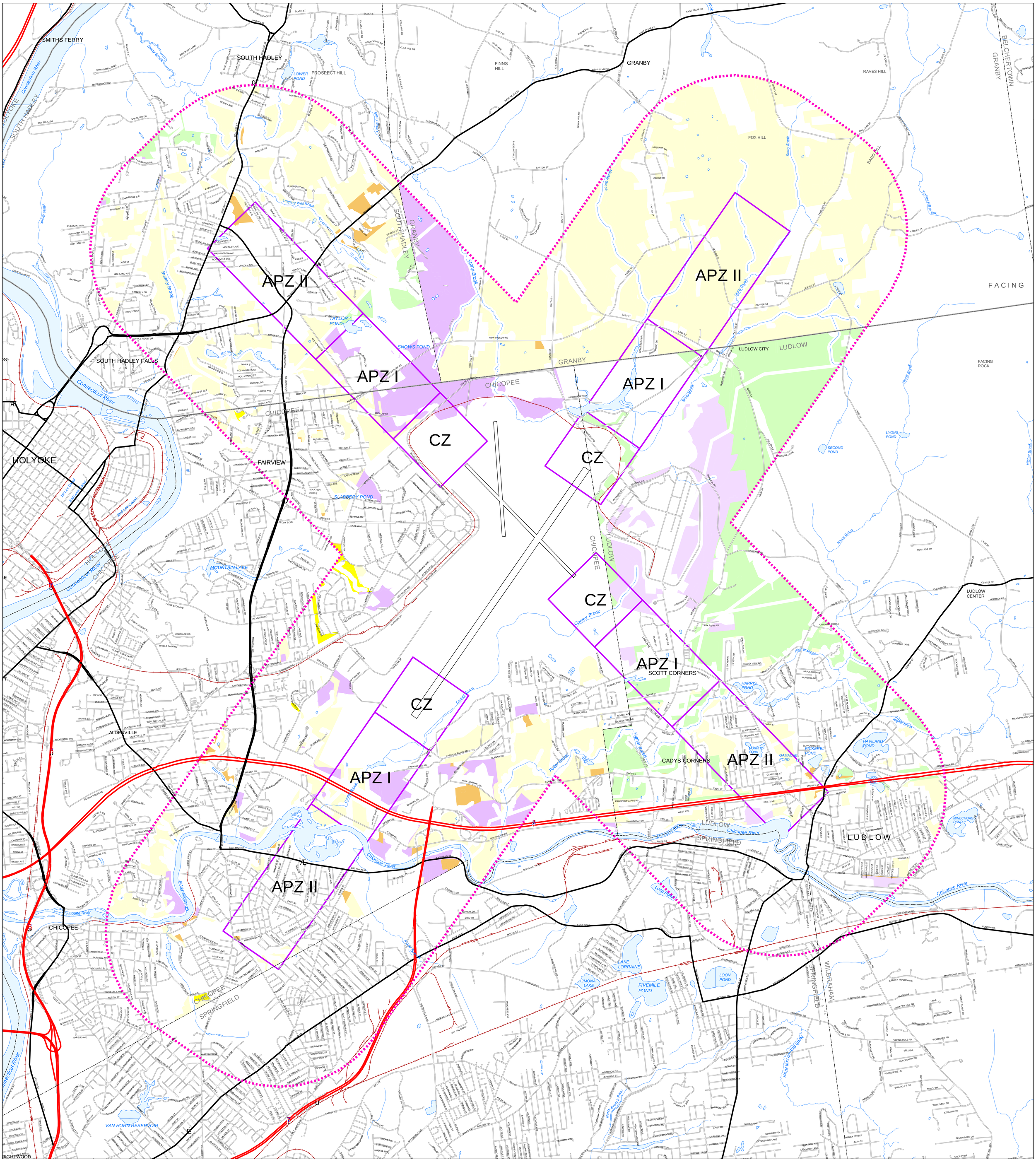
- *United States Department of Defense, Office of Economic Adjustment (OEA DoD), Arlington, VA*

Project Cooperators:

- *US Department of Defense, Office of Economic Adjustment (OEA DoD), Arlington, VA*
- *Wesover Air Reserve Base (WARB), Chicopee, MA*
- *Westover Metropolitan Development Corporation (WMDC), Chicopee, MA*
- *United States Department of Transportation, Federal Aviation Administration (FAA), Airports Division, New England Region, Burlington, MA*
- *Massachusetts Aeronautics Commission (MAC), Boston, MA*
- *HTNB Companies, Boston, MA*
- *Pioneer Valley Planning Commision (PVPC), West Springfield, MA*


HOCKANUM
PIAZZA
MOUNT TOM
THERMOPYLAE
DRY BROOK HILL
MOODY CORNER
ALDRICH MILLS
COOKS CORNER
GOAT PEAK
SMITHS FERRY
SOUTH HADLEY
COLD HILL
PITCHAWAM SWAMP
PORTER SWAMP
FORGE POND
PROSPECT HILL
RINNS HILL
GRANBY
RAVES HILL
BELCHERTOWN
FOX HILL
TURKEY HILL
FACING HILLS
HOLYOKE
SOUTH HADLEY FALLS
HIGHLANDS
OAKDALE
FAIRVIEW
CHICOPEE
ELMWOOD
SPRINGDALE
WILLIMANSETT
ALDENVILLE
CADYS CORNERS
SCOTT CORNERS
LUDLOW
LUDLOW CITY
LUDLOW CENTER
FACING ROCK
JEFFERSON PEAK
WILBRAHAM
SPRINGFIELD
WEST SPRINGFIELD
BRIGHTWOOD
CEDAR SWAMP
APZ I
APZ II
CZ
Connecticut River
Chicopee River
Bachelor Brook
Broad Brook
Stony Brook
Mill River
Watershops Pond
Ireland Brook
Westfield River
Tighe Brook
Hubbard Brook
Hitchcock Brook
Lyons Pond
Second Pond
Snows Pond
Gaudette Pond
Lower Pond
Mountain Lake
Van Horn Reservoir
Lake Lorraine
Fivemile Pond
Loon Pond
Harris Pond
Havilland Pond
Spectacle Pond
Mill Pond
Bass Pond
Island Pond
Venture Pond
Cedar Swamp
Sawmill River
Meadow Brook
Hampden Brook
Cooley Brook
Ireland Brook
Lower Pond
Lower Pond
Lower Pond


MOUNT TOM
THERMOPYLAE
DRY BROOK HILL
MOODY CORNER
ALDRICH MILLS
COOKS CORNER
COLD HILL
PITCHAWAM SWAMP
PORTER SWAMP
FORGE POND
SMITHS FERRY
SOUTH HADLEY
PROSPECT HILL
RINNS HILL
GRANBY
RAVES HILL
BELCHERTOWN
TURKEY HILL
FOX HILL
HOLYOKE
SOUTH HADLEY
APZ II
APZ I
CZ
GRANBY
SOUTH HADLEY
HIGHLANDS
SOUTH HADLEY FALLS
CHICOPEE
FAIRVIEW
OAKDALE
ELMWOOD
SPRINGDALE
HOLYOKE
CHICOPEE
MOUNTAIN LAKE
SNOWS POND
SLABBERY POND
APPLEBY'S POND
GRANBY
LUDLOW CITY
LUDLOW
CHICOPEE
FACING HILLS
FACING ROCK
JEFFERSON PEAK
LYONS POND
SECOND POND
LUDLOW CENTER
CHICOPEE
CZ
APZ I
APZ II
SCOTT CORNERS
CADYS CORNERS
HARRIS POND
HARVILAND POND
LUDLOW
SPRINGFIELD
LUDLOW
Chicopee River
WILLIMANSETT
ALDENVILLE
CHICOPEE
CHICOPEE
SPRINGFIELD
CHICOPEE
SPRINGFIELD
VAN HORN RESERVOIR
BRIGHTWOOD
WEST SPRINGFIELD
SPRINGFIELD
SPRINGFIELD
Connecticut River
Waterhope Pond
ISLAND POND
LAKE LORRAINE
CHICOPEE
FIVEMILE POND
LOON POND
SPRINGFIELD
WILBRAHAM
SPRINGFIELD
WILBRAHAM
SASS POND
MILL POND
VENTURE POND
CEDAR SWAMP
North Branch Mill River
Chicopee River
Connecticut River
Connecticut River
Connecticut River
Connecticut River
Connecticut River
Connecticut River
Bachelor Brook
Bachelor Brook
Bachelor Brook
Bachelor Brook
Stony Brook
Stony Brook
Stony



©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

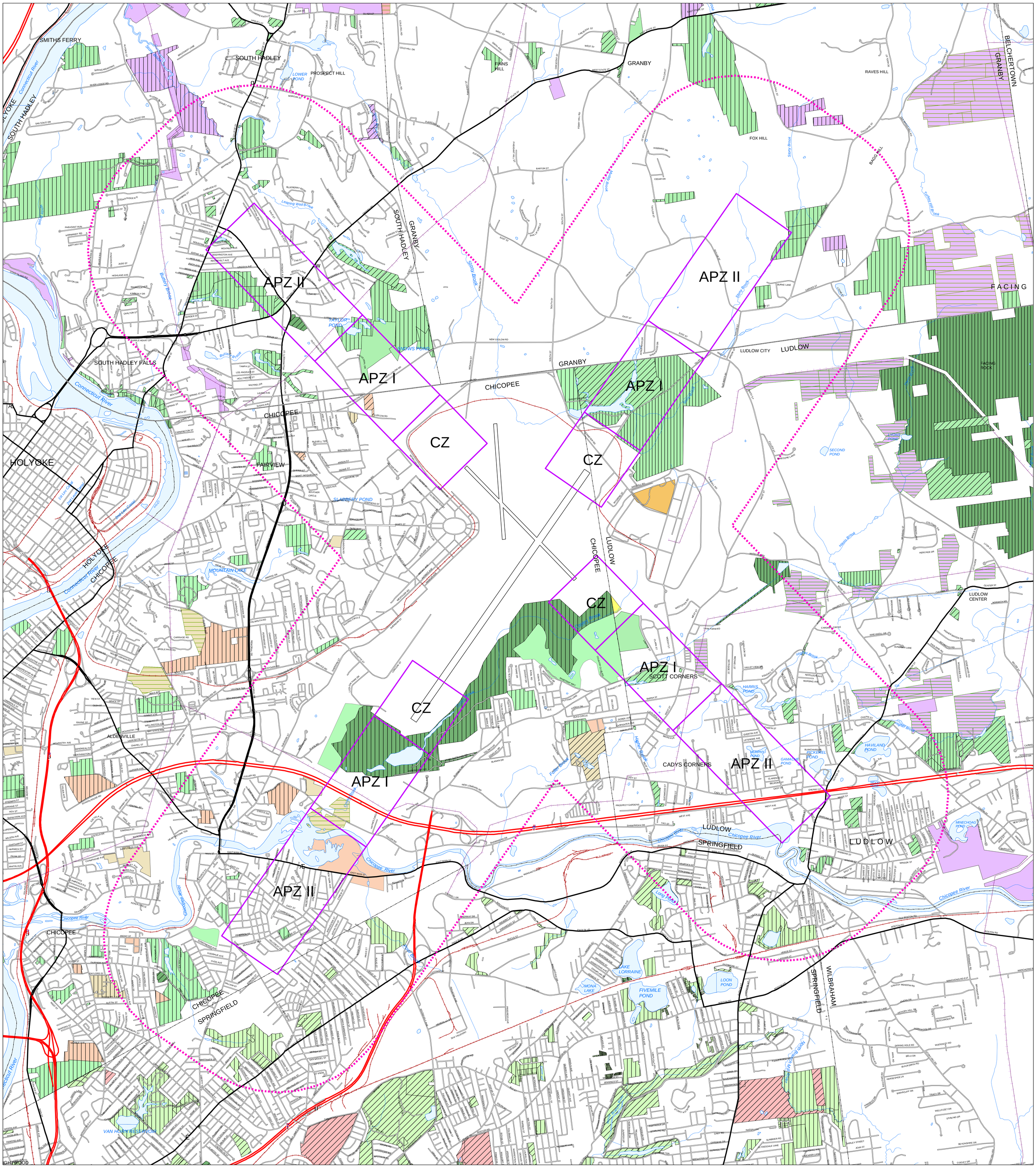
Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.

Project funded by:

- United States Department of Defense, Office of Economic Adjustment (OEA DoD), Arlington, VA

Project Cooperators:

- US Department of Defense, Office of Economic Adjustment (OEA DoD), Arlington, VA
- Wesover Air Reserve Base (WARB), Chicopee, MA
- Westover Metropolitan Development Corporation (WMDC), Chicopee, MA
- United States Department of Transportation, Federal Aviation Administration (FAA), Airports Division, New England Region, Burlington, MA
- Massachusetts Aeronautics Commission (MAC), Boston, MA
- HTNB Companies, Boston, MA
- Pioneer Valley Planning Commision (PVPC), West Springfield, MA



Legend

- Extent of 65 Ldn Noise Contour (1993)
- Crash and Accident Potential Zones
- Streams
- Lakes and Ponds
- Town Line
- County Line
- State Line
- HIGHWAY
- INTERSTATE
- RAILROAD
- RAMP
- SECONDARY
- Electrical Transmission Lines
- Aqueduct

Recreational & Protected Open Space

Ownership

- Federal
- State
- County
- Municipal
- Nonprofit
- Private

Level Of Protection

- Limited
- Permanent
- Temporary

Westover Joint Land Use Study

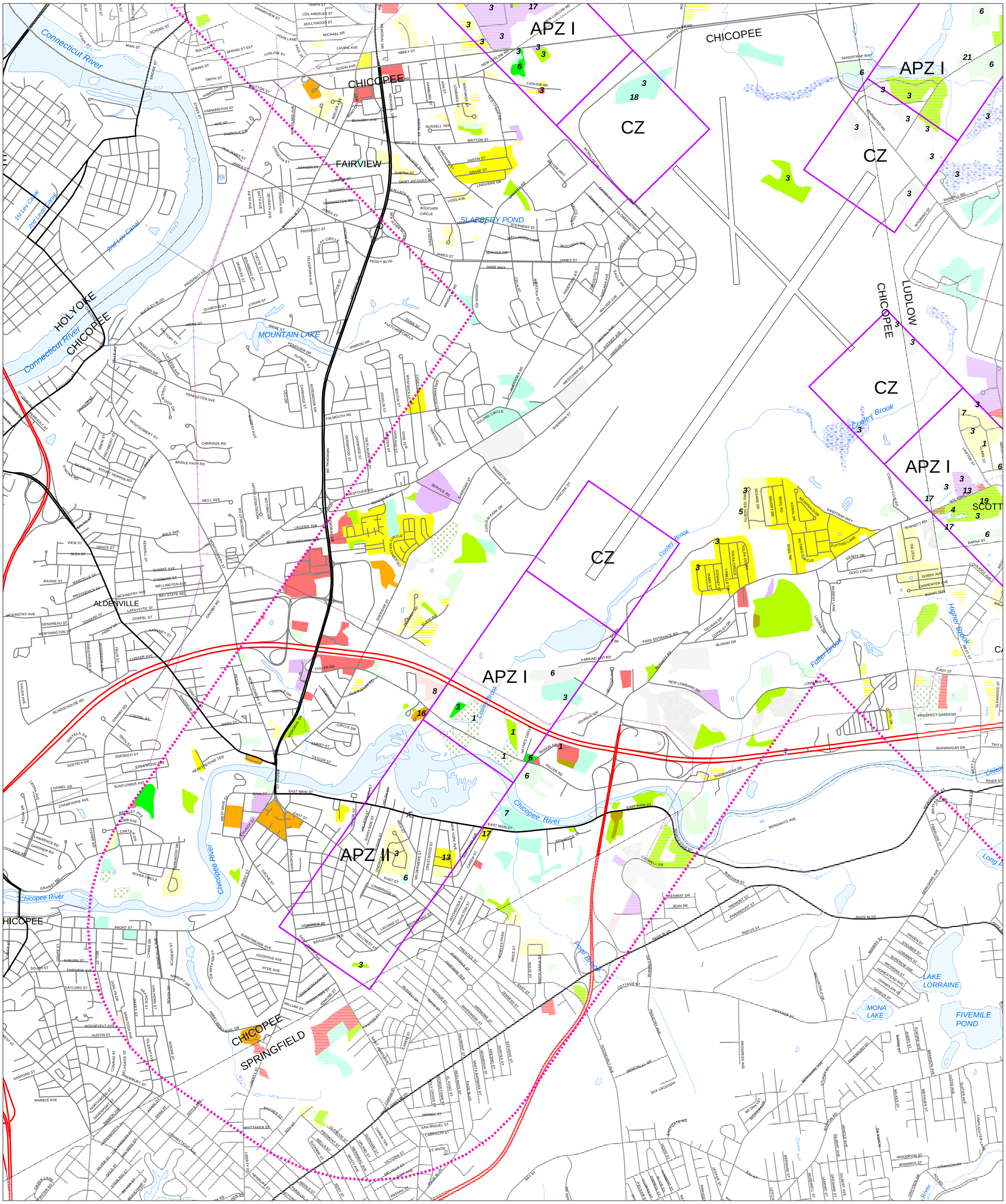
Recreational & Protected Open Space

0.7 0.35 0 0.7 Miles

©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.



Legend

- Extent of 65 Ldn Noise Contour (1993)
- Crash and Accident Potential Zones
- Streams
- Lakes and Ponds
- Town Line
- County Line
- State Line
- Highway
- Interstate
- Railroad
- Ramp
- Secondary Road
- Electrical Transmission Lines
- Aqueduct

The number shown on the landuse is the 1971 landuse code. For example, code number 1 on bright yellow means:

"In 1971 the landuse was Crop Land and now the landuse is High Density Residential"

Land Use

1. Crop Land
2. Pasture
3. Forest
4. Non Forested Wetland
5. Mining, Sand & Gravel
6. Open Land
7. Participation Recreation
8. Spectator Recreation
9. Water Based Recreation
10. Multifamily Residential
11. High Densitiy Residential
12. Medium Density Residential
13. Low Density Residential
15. Commercial
16. Industrial
17. Urban Open, Institutional
18. Transportation, Warehouse
19. Waste Disposal
20. Open Water
21. Orchard or Nursery

Westover Joint Land Use Study
Chicopee
Landuse Change Within 65 Ldn Noise Contour
1971 -1999

0 0.5 1 Miles

©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.

Westover Joint Land Use Study

Chicopee Generalized Municipal Zoning Districts

Legend

- 2002 Study Area
- Crash and Accident Potential Zones
- Streams
- Lakes and Ponds
- Town Line
- County Line
- State Line
- Highway
- Interstate
- Railroad
- Secondary Road
- Electrical Transmission Lines
- Aqueduct

Generalized Zoning

- Single Family Residential
- Multifamily Residential
- Residential / Agriculture
- General Industry
- Light Industry
- Mixed Use
- General Business
- Westover Air Reserve Base

©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.

PORTER SWAMP
PITCHAWAM SWAMP
FORGE POND
Ingraham Brook
Stony Brook
Muddy Brook
Turkey Hill Brook
Harris Brook
LYONS POND
SECOND POND
AMHERST ST
PORTER ST
NORTH ST
LYMAN ST
GREEN MEADOW LANE
DEER BROOK DR
SCHOOL ST
FORGE POND RD A
FORGE POND R D B
EAST STATE ST
GRANDVIEW AVE
WEST ST
SMITH AVE
LEO DR
CRESCENT ST
KELLOGG ST
CENTER ST
WEST STATE ST
PARISH HILL RD
TAYLOR ST
KENDALL ST
FINNS HILL
GRANBY
RAVES HILL
CHICOPEE ST
FERRY HILL RD
PLEASANT ST
PHEASANT HILL ST
BARTON ST
JENNIFER DR
PHILLIP CIRCLE
SOUTH ST
EAST ST
HUBBARD DR
CEDAR DR
FOX HILL
OLD BAGGS HILL RD
BAGG HILL
CARVER ST
BURKE LANE
LYONS ST
MORGAN ST
TRUBY ST
NEW LUDLOW RD
ACREBROOK DR
SHERWOOD DR
TILLEY ST
BROOK ST
WEST ST
LUDLOW CITY
LUDLOW
OLD WEST ST
PERIMETER RD
SANDTRAP WAY
FULLER ST
PINECONE LANE
LYON ST
APZ II
APZ I
CZ
CZ

Legend

- Extent of 65 Ldn Noise Contour (1993)
- Crash and Accident Potential Zones
- Streams
- Lakes and Ponds
- Town Line
- County Line
- State Line
- Highway
- Interstate
- Railroad
- Ramp
- Secondary Road
- Electrical Transmission Lines
- Aqueduct

The number shown on the landuse is the 1971 landuse code. For example, code number 1 on bright yellow means:

"In 1971 the landuse was Crop Land and now the landuse is High Density Residential"

Land Use

1 Crop Land
2 Pasture
3 Forest
4 Non Forested Wetland
5 Mining, Sand & Gravel
6 Open Land
7 Participation Recreation
8 Spectator Recreation
9 Water Based Recreation
10 Multifamily Residential
11 High Densitiy Residential
12 Medium Density Residential
13 Low Density Residential
15 Commercial
16 Industrial
17 Urban Open, Institutional
18 Transportation, Warehouse
19 Waste Disposal
20 Open Water
21 Orchard or Nursery

Westover Joint Land Use Study
Granby

Landuse Change Within 65 Ldn Noise Contour
1971 -1999

0 0.4 0.8 Miles

©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.

PORTER SWAMP
PITCHAWAM SWAMP
COLD HILL
FINNS HILL
GRANBY
RAVES HILL
FOX HILL
BAGG HILL
LUDLOW
LUDLOW CITY
CHICOPEE
APZ II
APZ I
APZ I
CZ
CZ
Ingraham Brook
Stony Brook
Muddy Brook
Stony Brook
Stony Brook
SECOND POND
LYONS POND
WEST ST
COLD HILL RD
COLD HILL DR
GRANDVIEW AVE
AMHERST ST
PORTER ST
NORTH ST
LYMAN ST
GREEN MEADOW LANE
DEER BROOK DR
EAST STATE ST
SCHOOL ST
CRESCENT ST
SMITH AVE
LEDOGA
KELLOGG ST
WEST STATE ST
TAYLOR ST
PARISH HILL RD
WENDALL ST
PLEASANT ST
HIGH ST
KAREN DR
FERRY HILL RD
PLEASANT HILL ST
BARTON ST
JENNIFER DR
PHILIP CIRCLE
SOUTH ST
EAST ST
HUBBARD DR
CEDAR DR
TRURY ST
CHICOPEE ST
BURKE LANE
CARVER ST
LYONS ST
MORGAN ST
NEW LUDLOW RD
ACREBROOK DR
SHERWOOD DR
OUTLET ST

Legend

- 2002 Study Area
- Crash and Accident Potential Zones
- Streams
- Lakes and Ponds
- Town Line
- County Line
- State Line
- Highway
- Interstate
- Railroad
- Secondary Road
- Electrical Transmission Lines
- Aqueduct

Generalized Zoning

- Single Family Residential
- Multifamily Residential
- Residential / Agriculture
- General Industry
- Light Industry
- Mixed Use
- General Business
- Westover Air Reserve Base

Westover Joint Land Use Study

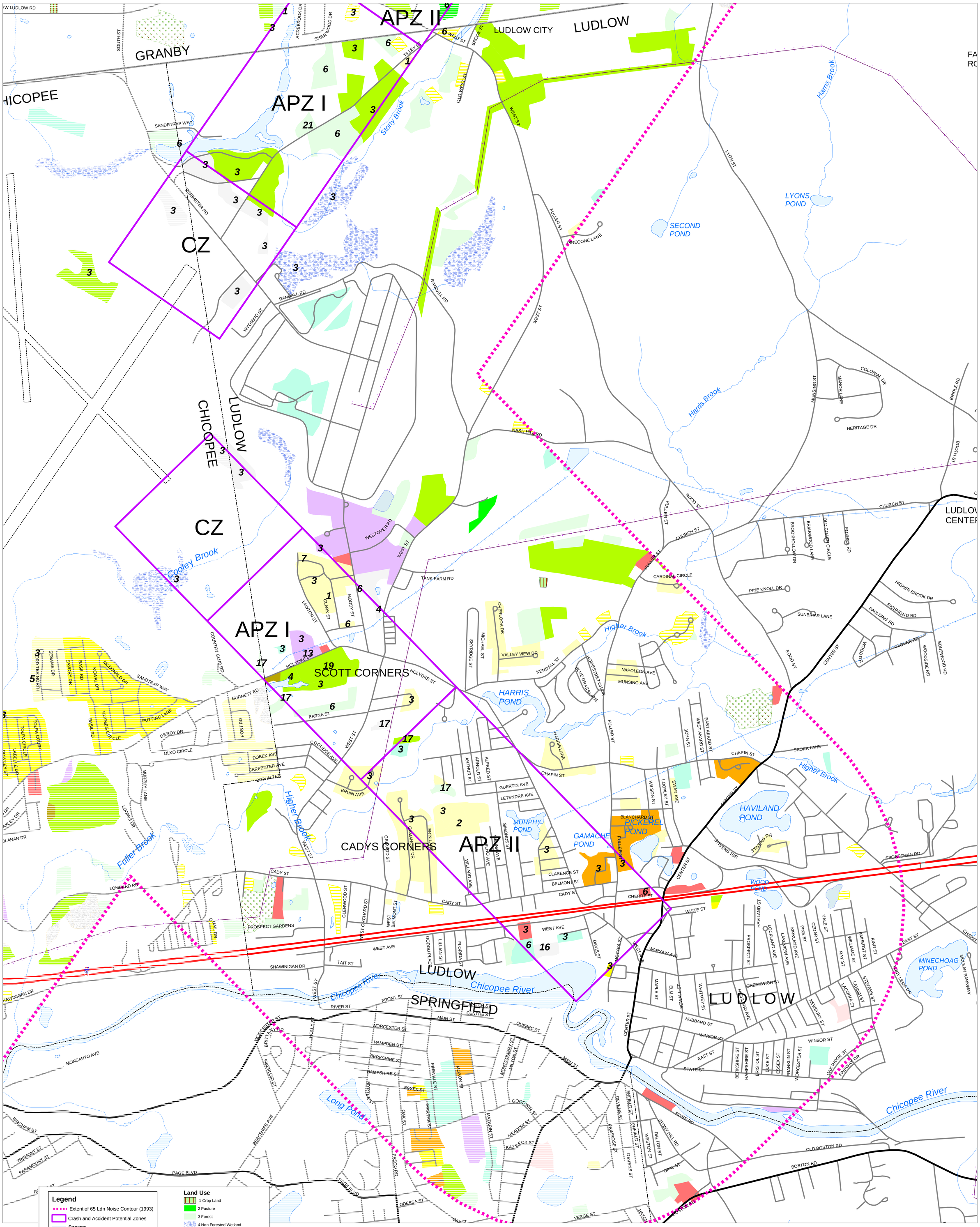
Granby Generalized Municipal Zoning Districts

0 0.045 0.09 0.18 0.27 0.36 0.45 Miles

©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.



Legend

- Extent of 65 Ldn Noise Contour (1993)
- Crash and Accident Potential Zones
- Streams
- Lakes and Ponds
- Town Line
- County Line
- State Line
- Highway
- Interstate
- Railroad
- Ramp
- Secondary Road
- Electrical Transmission Lines
- Aqueduct

The number shown on the landuse is the 1971 landuse code. For example, code number 1 on bright yellow means:

"In 1971 the landuse was Crop Land and now the landuse is High Density Residential"

Land Use

1. 1 Crop Land
2. 2 Pasture
3. 3 Forest
4. 4 Non Forested Wetland
5. 5 Mining, Sand & Gravel
6. 6 Open Land
7. 7 Participation Recreation
8. 8 Spectator Recreation
9. 9 Water Based Recreation
10. 10 Multifamily Residential
11. 11 High Densitiy Residential
12. 12 Medium Density Residential
13. 13 Low Density Residential
15. 15 Commercial
16. 16 Industrial
17. 17 Urban Open, Institutional
18. 18 Transportation, Warehouse
19. 19 Waste Disposal
20. 20 Open Water
21. 21 Orchard or Nursery

Westover Joint Land Use Study
Ludlow

Landuse Change Within 65 Ldn Noise Contour
1971 -1999

©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.

0 0.4 0.8 Miles

Westover Joint Land Use Study

Ludlow Generalized Municipal Zoning Districts

©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.

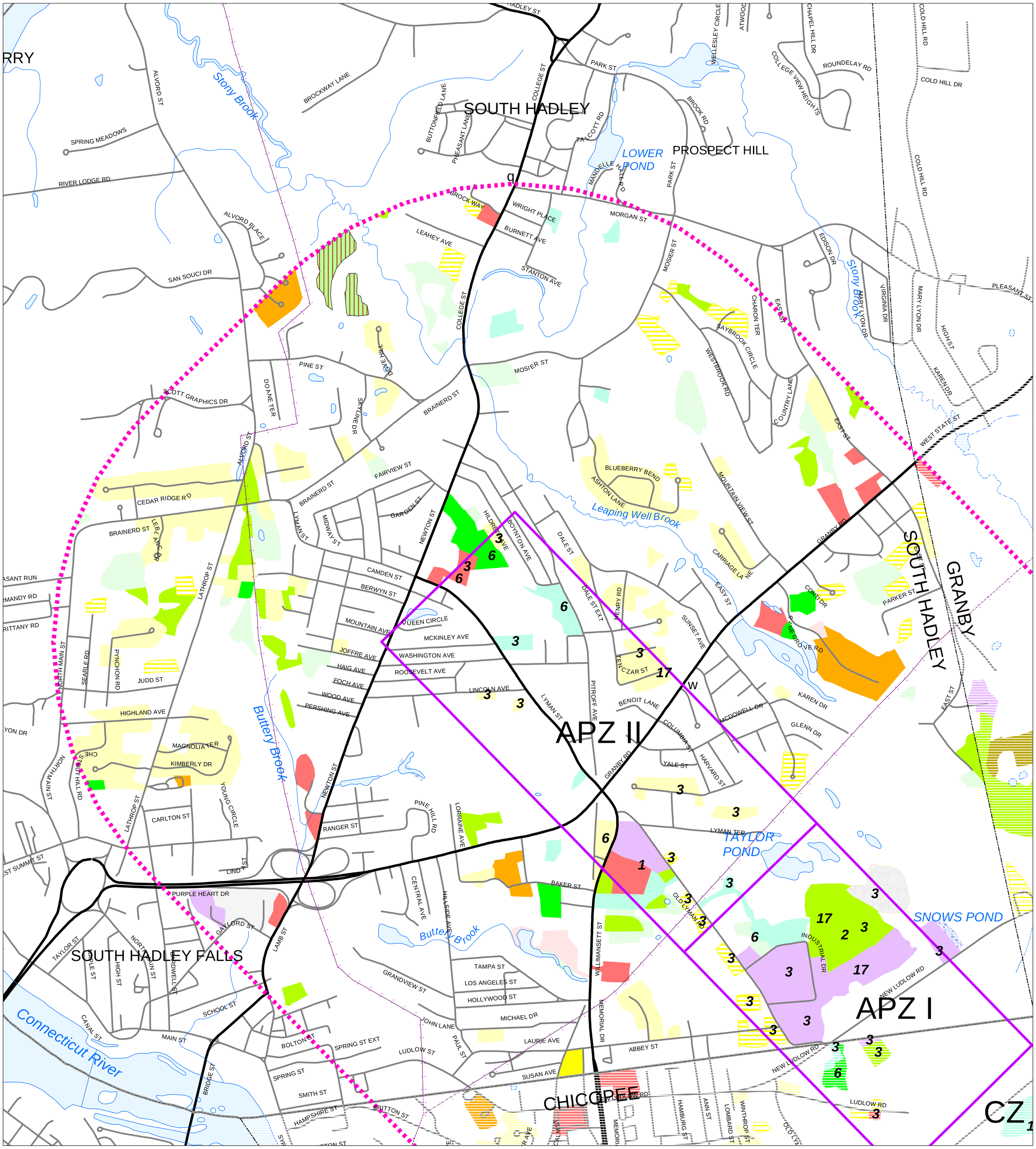
Legend

- 2002 Study Area
- Crash and Accident Potential Zones
- Streams
- Lakes and Ponds
- Town Line
- County Line
- State Line
- Highway
- Interstate
- Railroad
- Secondary Road
- Electrical Transmission Lines
- Aqueduct

Generalized Zoning

- Single Family Residential
- Multifamily Residential
- Residential / Agriculture
- General Industry
- Light Industry
- Mixed Use
- General Business
- Westover Air Reserve Base

0 0.05 0.1 0.2 0.3 0.4 0.5 Miles



Legend

- Extent of 65 Ldn Noise Contour (1993)
- Crash and Accident Potential Zones
- Streams
- Lakes and Ponds
- Town Line
- County Line
- State Line
- Highway
- Interstate
- Railroad
- Ramp
- Secondary Road
- Electrical Transmission Lines
- Aqueduct

The number shown on the landuse is the 1971 landuse code. For example, code number 1 on bright yellow means:

"In 1971 the landuse was Crop Land and now the landuse is High Density Residential"

Land Use

1. Crop Land
2. Pasture
3. Forest
4. Non Forested Wetland
5. Mining, Sand & Gravel
6. Open Land
7. Participation Recreation
8. Spectator Recreation
9. Water Based Recreation
10. Multifamily Residential
11. High Densitiy Residential
12. Medium Density Residential
13. Low Density Residential
15. Commercial
16. Industrial
17. Urban Open, Institutional
18. Transportation, Warehouse
19. Waste Disposal
20. Open Water
21. Orchard or Nursery

Westover Joint Land Use Study
South Hadley

Landuse Change Within 65 Ldn Noise Contour
1971 -1999

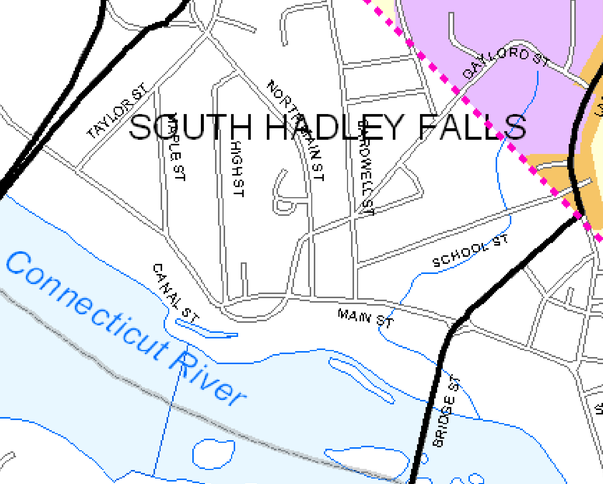
©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.

Westover Joint Land Use Study

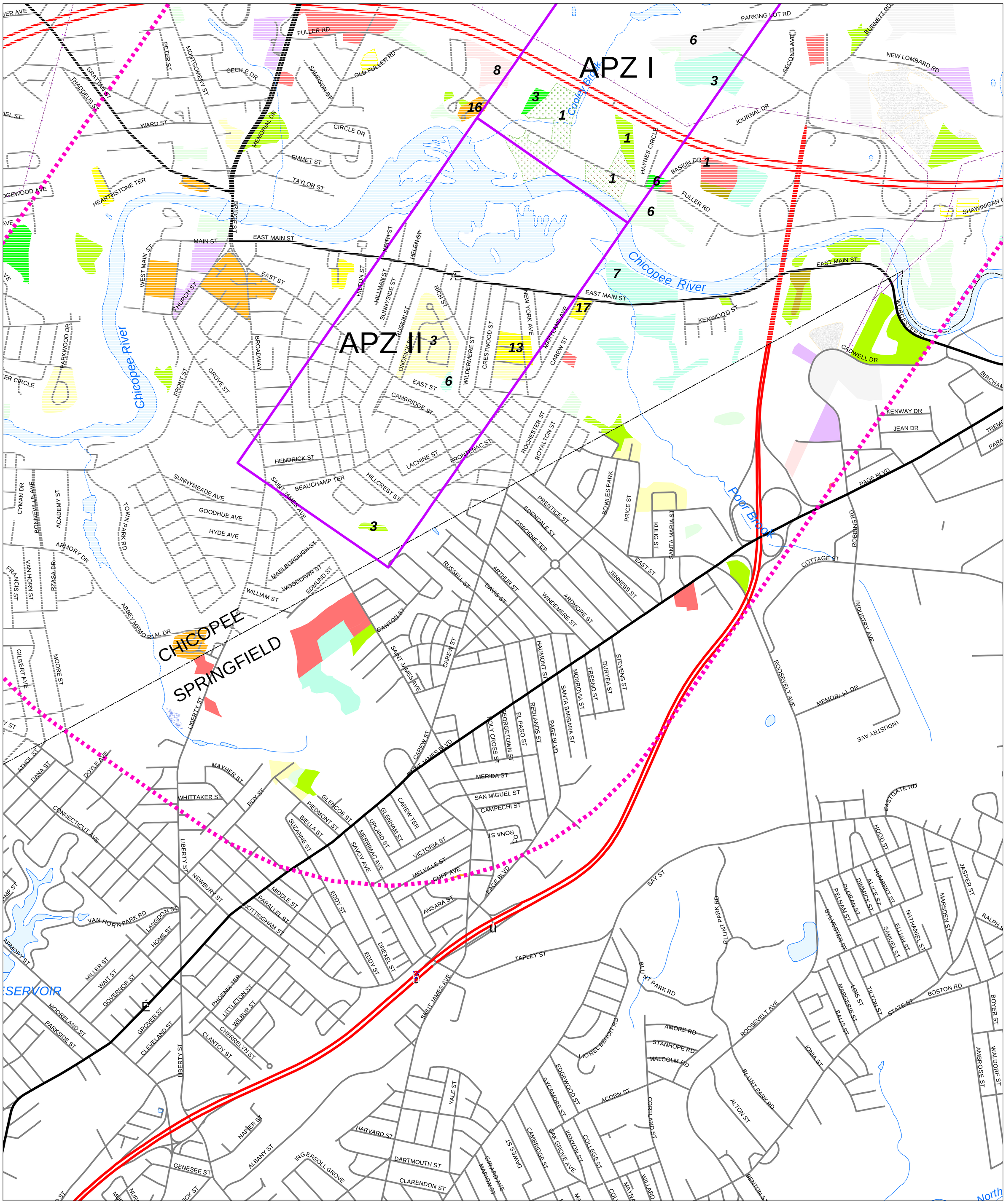
South Hadley Generalized Municipal Zoning Districts



©

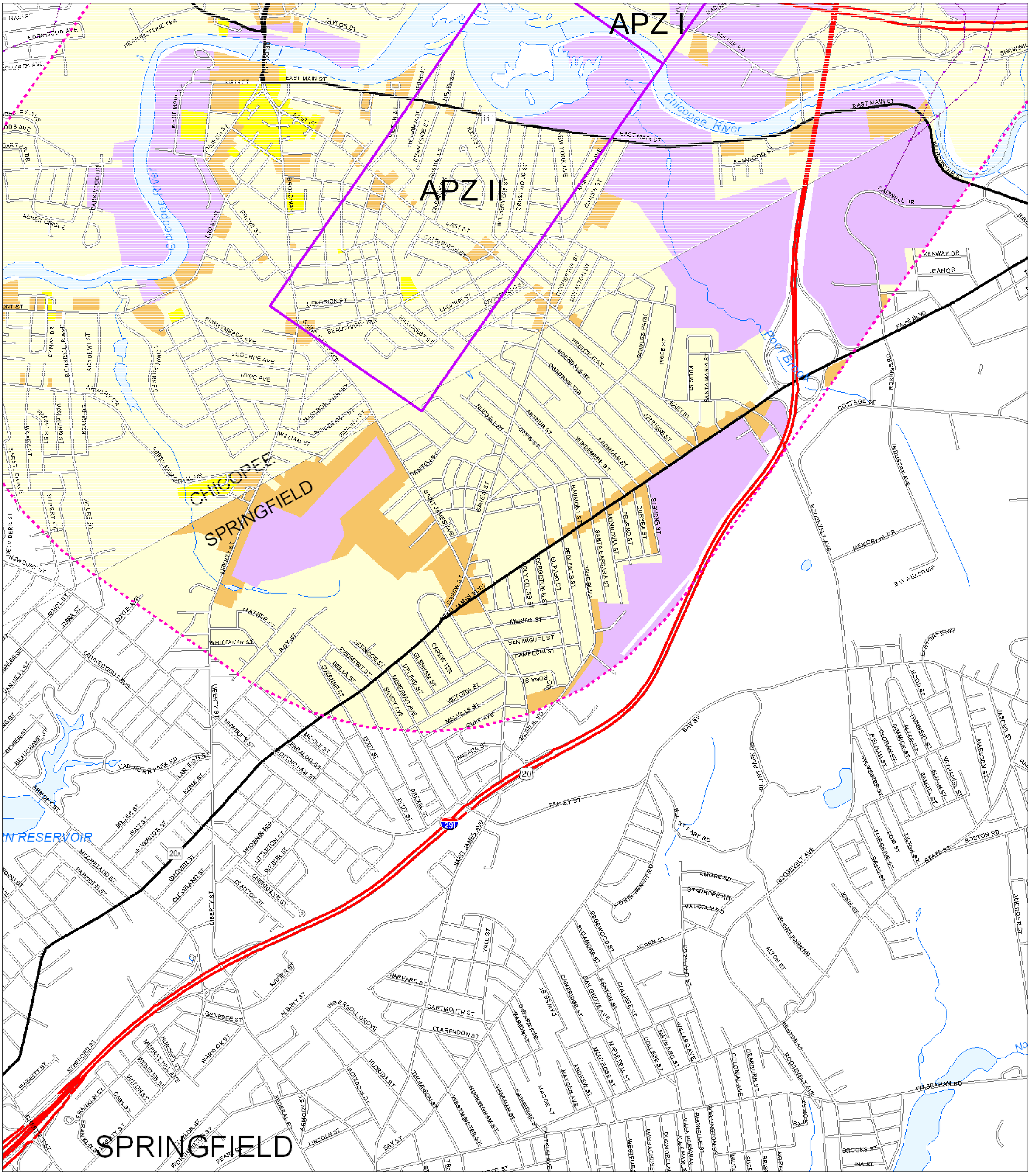
The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.


APZ I
APZ II
CHICOPEE
SPRINGFIELD
Chicopee River
Cooley Brook
Poor Brook
FULLER RD
MAIN ST
EAST MAIN ST
CHURCH ST
BRIDGE ST
MEMORIAL DR
CECILE DR
OLD FULLER RD
SAMPSON ST
PETER ST
MONTGOMERY ST
GRATTAN ST
THADDEUS ST
WARD ST
CIRCLE DR
EMMET ST
TAYLOR ST
HEARTHSTONE TER
WEST MAIN ST
EAST ST
BROADWAY
GROVE ST
FRONT ST
PARKWOOD DR
HILTON ST
KEITH ST
HELEN ST
HILLMAN ST
SUNNYSIDE ST
RUSKIN ST
ONDRICK ST
RICH ST
WILDERMERE ST
CRESTWOOD ST
NEW YORK AVE
MARYLAND AVE
CAREW ST
HAYNES CIRCLE
BASKIN DR
JOURNAL DR
SECOND AVE
PARKING LOT RD
BURNETT RD
NEW LOMBARD RD
SHAWINIGAN D
KENWOOD ST
WORCESTER ST
CADWELL DR
BIRCHAM
KENWAY DR
JEAN DR
TREMO
PARA
PAGE BLVD
ROBBINS RD
COTTAGE ST
INDUSTRY AVE
ROOSEVELT AVE
MEMORIAL DR
INDUSTRY AVE
HENDRICK ST
BEAUCHAMP TER
SAINT JAMES AVE
HILLCREST ST
LACHINE ST
FRONTENAC ST
ROCHESTER ST
ROYALTON ST
SUNNYMEADE AVE
GOODHUE AVE
HYDE AVE
TOWN PARK RD
ABBEY MEMORIAL DR
ARMORY DR
CYMAN DR
FRANCIS ST
VAN HORN ST
RIZASA DR
ACADEMY ST
BENNINGTON AVE
MARLBOROUGH ST
WOODLAWN ST
EDMUND ST
WILLIAM ST
CANTON ST
RUSSELL ST
DAVIS ST
ARTHUR ST
WINDEMERE ST
ARDMORE ST
JENNESS ST
EAST ST
PRENTICE ST
EDENDALE ST
OSBORNE TER
BOWLES PARK
PRICE ST
KULIG ST
SANTA MARIA ST
HAUMONT ST
MONROVIA ST
FRESNO ST
DURYEA ST
STEVENS ST
SANTA BARBARA ST
PAGE BLVD
MERIDA ST
SAN MIGUEL ST
CAMPECHI ST
RONA ST
CAREW TER
GLENHAM ST
UPLAND ST
MERRIMAC AVE
SAVOY AVE
VICTORIA ST
MELVILLE ST
CUFF AVE
ANSARA ST
EDDY ST
DREXEL ST
SUZANNE ST
BIELLA ST
PIEDMONT ST
GLENCOE ST
MAYHER ST
WHITTAKER ST
ROY ST
CONNECTICUT AVE
LIBERTY ST
NEWBURY ST
MIDDLE ST
PARALLEL ST
NOTTINGHAM ST
PHOENIX TER
LITTLETON ST
WILBUR ST
CHERRELYN ST
CLANTOY ST
MILLER ST
WAIT ST
GOVERNOR ST
GROVER ST
CLEVELAND ST
MOORELAND ST
PARKSIDE ST
HOME ST
LANGDON ST
VAN HORN PARK RD
ATHOL ST
DANA ST
DOYLE AVE
GILBERT AVE
MOORE ST
ATHOL ST
TAPLEY ST
BLUNT PARK RD
BLUNT PARK RD
LIONEL BENOIT RD
AMORE RD
STANHOPE RD
MALCOLM RD
ROOSEVELT AVE
IONIA ST
BAY ST
EDGEWOOD ST
SYCAMORE ST
ACORN ST
CORTLAND ST
ALTON ST
BENTON ST
OAK GROVE AVE
KENYON ST
COLLEGE ST
CAMBRIDGE ST
DAWES ST
GIRARD AVE
MARION ST
HARVARD ST
DARTMOUTH ST
CLARENDON ST
YALE ST
ING ERSOLL GROVE
NAPIER ST
ALBANY ST
GENESEE ST
EASTGATE RD
HOOD ST
HUMBERT ST
ALICE ST
DIMMICK ST
CLORAN ST
PELHAM ST
SYLVESTER ST
SAMUEL ST
ELIJAH ST
NATHANIEL ST
MARSDEN ST
JASPER ST
RALPH S
BOSTON RD
STATE ST
TILTON ST
LOIS ST
MARGERIE ST
BALLS ST
BOYER ST
AMBROSE ST
WALDORF ST
8
16
3
1
6
7
17
13
6
3
3
1
1
6
6
1
1
6
6
3
3
1
1
1

Westover Joint Land Use Study

Springfield Generalized Municipal Zoning Districts



Legend

- 2002 Study Area
- Crash and Accident Potential Zones
- Streams
- Lakes and Ponds
- Town Line
- County Line
- State Line
- Highway
- Interstate
- Railroad
- Secondary Road
- Electrical Transmission Lines
- Aqueduct

Generalized Zoning

- Single Family Residential
- Multifamily Residential
- Residential / Agriculture
- General Industry
- Light Industry
- Mixed Use
- General Business
- Westover Air Reserve Base

©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.

Westover Joint Land Use Study
1990 Ldn Noise Contours

Legend

- Crash and Accident Potential Zones
- Streams
- Lakes and Ponds
- Town Line
- County Line
- State Line
- Highway
- Interstate
- Railroad
- Ramp
- Secondary
- Electrical Transmission Lines
- Aqueduct

LDNRANGE

- 65-70
- 70-75
- 75-80
- 80-85
- 85+

0.75 0.375 0 0.75 Miles

©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.

Westover Joint Land Use Study
1993 Ldn Noise Contours

Legend

- Crash and Accident Potential Zones
- Streams
- Lakes and Ponds
- Town Line
- County Line
- State Line
- Highway
- Interstate
- Railroad
- Ramp
- Secondary
- Electrical Transmission Lines
- Aqueduct

1993 Ldn Noise Contours
LDNRANGE

- 65-70
- 70-75
- 75-80
- 80-85
- 85+

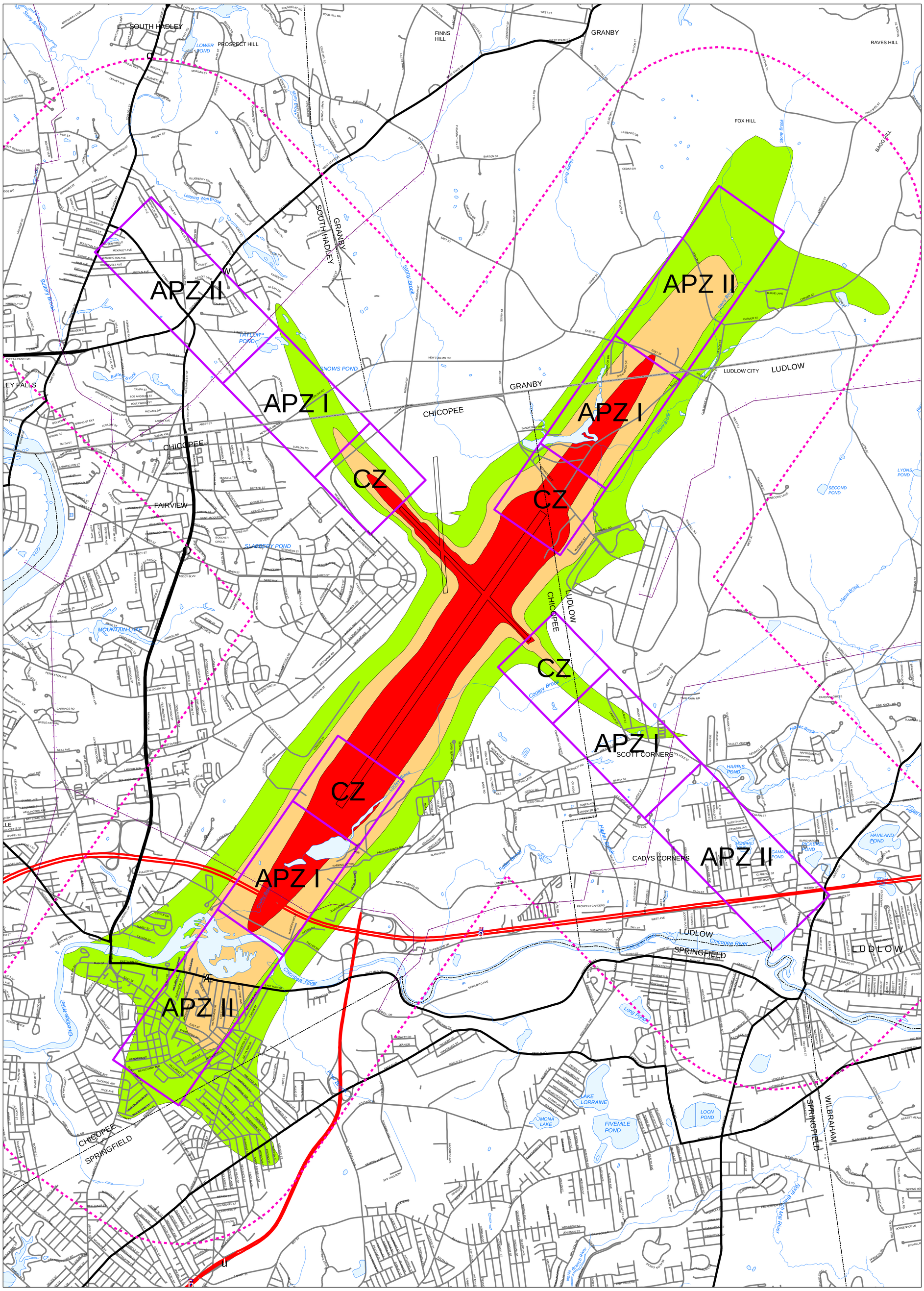
Noise Contours from
DEPARTMENT OF THE AIR FORCE
DIRECTORATE OF ENGINEERING & SERVICES
WASHINGTON, DC

0.9 0.45 0 0.9 Miles

©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.



Legend

- 2002 Study Boundary
- Crash and Accident Potential Zones
- Streams
- Lakes and Ponds
- Town Line
- County Line
- State Line
- Highway
- Interstate
- Railroad
- Ramp
- Secondary
- Electrical Transmission Lines
- Aqueduct

LDNRANGE

- 65-70
- 70-75
- 75+

Noise Contours from:
Westover Metropolitan Airport
Part 150 Noise Exposure Map Update
HNTB Corporation
50 Milk Street, Boston, MA
2002

Westover Joint Land Use Study
2002 Ldn Noise Contours

0.9 0.45 0 0.9 Miles

©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.

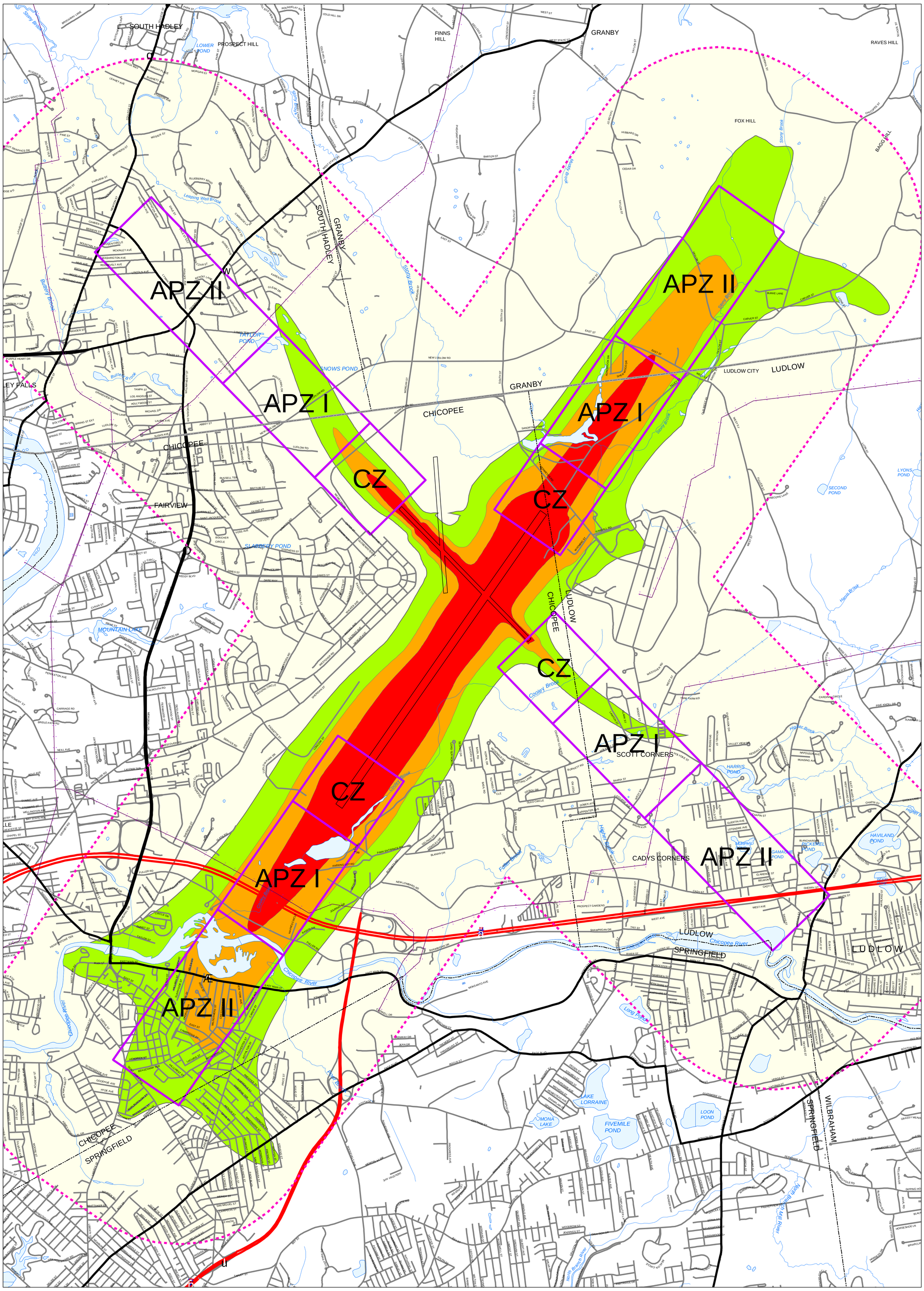
Project funded by:

- United States Department of Defense, Office of Economic Adjustment (OEA DoD), Arlington, VA

Project Cooperators:

- US Department of Defense, Office of Economic Adjustment (OEA DoD), Arlington, VA
- Wesover Air Reserve Base (WARB), Chicopee, MA
- Westover Metropolitan Development Corporation (WMDC), Chicopee, MA
- United States Department of Transportation, Federal Aviation Administration (FAA), Airports Division, New England Region, Burlington, MA
- Massachusetts Aeronautics Commission (MAC), Boston, MA
- HTNB Companies, Boston, MA
- Pioneer Valley Planning Commision (PVPC), West Springfield, MA

Westover Joint Land Use Study
2007 Ldn Noise Contours



Legend

- 2002 Study Boundary
- Crash and Accident Potential Zones
- Streams
- Lakes and Ponds
- Town Line
- County Line
- State Line
- Highway
- Interstate
- Railroad
- Ramp
- Secondary
- Electrical Transmission Lines
- Aqueduct

LDNRANGE

- 65-70
- 70-75
- 75+

Noise Contours from:
Westover Metropolitan Airport
Part 150 Noise Exposure Map Update
HNTB Corporation
50 Milk Street, Boston, MA
2002

0.9 0.45 0 0.9 Miles

©

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.

Produced by the PIONEER VALLEY PLANNING COMMISSION
26 Central Street, West Springfield, MA 01089 • (413) 781-6045.

Project funded by:

- United States Department of Defense, Office of Economic Adjustment (OEA DoD), Arlington, VA

Project Cooperators:

- US Department of Defense, Office of Economic Adjustment (OEA DoD), Arlington, VA
- Wesover Air Reserve Base (WARB), Chicopee, MA
- Westover Metropolitan Development Corporation (WMDC), Chicopee, MA
- United States Department of Transportation, Federal Aviation Administration (FAA), Airports Division, New England Region, Burlington, MA
- Massachusetts Aeronautics Commission (MAC), Boston, MA
- HTNB Companies, Boston, MA
- Pioneer Valley Planning Commision (PVPC), West Springfield, MA

Appendix C – Summary Paper on Ground Truth Verification Details

We reviewed the 1999 Land Use and noted any land use that was in any way related to schools, nursing homes, churches, hospitals, etc. We compared the 1999 data with that gathered in 1990. We visited areas that were noted as institutional, or participation recreation (e.g., a ball field is an indicator of a possible school). We then went out and verified the land use and eliminated any area that was verified as NOT having the land use of interest. We found that, although there has been some new development in the areas encompassed by the APZs, there was no new development related to schools, churches, hospitals or nursing homes in these areas. There is one existing grammar school in an APZII in the Town of South Hadley, and two new schools in Chicopee near WARB, but not in the APZs.

The table below illustrates the general land use changes that are pertinent within the 65 LDN noise contours. In almost all cases there have been at least minor, and in many cases, significant conversions of open, agricultural, and forested land to residential and commercial uses. As has been addressed previously, the noise contours do not overlap all of the clear zones or APZs, but this table illustrates the increasing development pressure around the airfields.

Westover Joint Landuse Study 2002		
Pertinent Land Use Change Within the 65 LDN Contour 1985 - 1999		
1985 Land Use	**1999 Landuse**	**ACRES**
Intensive Agriculture	Residential > 1/2 acre	59.8
Intensive Agriculture	Commercial	7.2
Intensive Agriculture	Industrial	11.4
Pasture	Res. 1/4 to 1/2 acre lot	7.7
Pasture	Residential > 1/2 acre	26.8
Forest	Multi-Family Residential	28.3
Forest	Res. smaller than 1/4 acre lot	5.8
Forest	Res. 1/4 to 1/2 acre lot	161.2
Forest	Residential > 1/2 acre	104.9
Forest	Commercial	19.7
Forest	Industrial	78.2
Forest	Transportation, Warehouse	66.9
Mining, Sand & Gravel	Residential > 1/2 acre	11.7
Open Land, Power Lines, No Veg	Multi-Family Residential	4.1
Open Land, Power Lines, No Veg	Res. smaller than 1/4 acre lot	4.8
Open Land, Power Lines, No Veg	Res. 1/4 to 1/2 acre lot	16.1
Open Land, Power Lines, No Veg	Residential > 1/2 acre	29.0
Open Land, Power Lines, No Veg	Commercial	27.3
Open Land, Power Lines, No Veg	Industrial	7.2
Res. 1/4 to 1/2 acre lot	Commercial	12.2
Res. 1/4 to 1/2 acre lot	Industrial	2.0
Residential > 1/2 acre	Mining, Sand & Gravel	4.6
Residential > 1/2 acre	Res. 1/4 to 1/2 acre lot	3.3
Residential > 1/2 acre	Industrial	3.9
Industrial	Open Land, Power Lines, No Veg	8.6
Industrial	Participation Recreation	8.0

Industrial	Multi-Family Residential	2.7
Urban Open, Institutional	Res. 1/4 to 1/2 acre lot	51.7
Urban Open, Institutional	Residential > 1/2 acre	16.0
Urban Open, Institutional	Commercial	23.4
Urban Open, Institutional	Industrial	69.0
Urban Open, Institutional	Transportation, Warehouse	43.9
Transportation, Warehouse	Res. smaller than 1/4 acre lot	7.6
Transportation, Warehouse	Urban Open, Institutional	7.2
Waste Treatment & Disposal	Open Land, Power Lines, No Veg	70.7
Waste Treatment & Disposal	Urban Open, Institutional	3.7

-Jim Scace, GIS Specialist

Appendix D – Summary Paper on Zoning Review

Zoning in WARB JLUS Area

Note: Educational and religious institutions are permitted by right in all districts according to Massachusetts Zoning Enabling Act

Chicopee

Permitted uses in study area:

- Churches
- Schools
- Day care centers
- Single family homes
- Nursing homes
- Hospitals and clinics
- Mobile home parks
- Telecommunications in Business A, B & C and Industrial Districts with Special Permit, with height up to 190 feet.
- Billboards up to 144 feet square, in Business Districts, by Special Permit
- Gas stations in Commercial and Industrial Districts

No overlay district in place for WARB area

Granby

Permitted uses in study area:

- Single family homes
- Schools, with Site Plan Approval
- Churches, with Site Plan Approval
- Libraries, with Site Plan Approval
- Community centers, with Special Permit
- Hospitals, with Special Permit
- Nursing and convalescent homes, with Special Permit

Prohibited uses:

- Junkyards
- Trailer parks
- Billboards

No overlay district in place for WARB area

Ludlow

Permitted uses in study area:

- Wireless communication facilities, in Agriculture and Industrial Districts, up to 200 feet in height
- Single family homes
- Gas stations

The following uses are prohibited in the town's Aircraft Flight Overlay District:

- Nursing Homes
- Schools
- Hospitals
- Day Care Centers
- Auditoriums
- Houses of Worship
- Concert Halls

Springfield

Permitted uses in study area:

- Single family homes
- Nursery schools
- Day care facilities
- Hospitals
- Schools
- Churches
- Wireless telecommunications facilities, 140 feet in residential districts to 425 feet in height in Business District C
- Dormitories
- Service stations
- Mobile home parks

No overlay district in place for WARB area

South Hadley

Permitted uses in study area:

- Single family homes
- Schools
- Churches
- Playgrounds
- Community centers
- Hospitals

- Telecommunications towers, with Special Permit, up to 140 feet

No overlay district in place for WARB area

The recommendation for each community is an overlay district for each APZ, prohibiting schools, churches, nursing homes, hospitals, and manufacturing uses that generate dust and high electrical current. The overlay district should also prohibit residential uses in the CZs and APZIs (see Appendix F).

Appendix E – Buildout Spreadsheets and Summary Report

Granby

1990 population	5,565		2001 pop.	2002 pop.	2003 pop.	2004 pop.	2005 pop.	2006 pop.
2000 population	6,132							
Rate of population change, 1990 – 2000	0.10189		6,194	6,258	6,321	6,386	6,451	6,517
2000 households	2247							
People per household, 2000	2.73							
Residential	**Acres**	**Square Feet**	**Lots**	**People**				
no constraints	1,670.8	72,780,048	1,481	4042				
Wetlands	156.6	6,821,496	104	284				
Flood Zone	116.9	5,092,164	93	255				
River Buffer Zone	185.6	8,084,736	16	45				
Aquifer Protection District	565.8	24,646,248	334	912				
Slope over 15%	119	5,201,064	53	144				
Total			**2,081**	**5,682**				
General Business	**Acres**	**Square Feet**	**FAR**	**Buildable Square feet**				
	3	130,680	0.32	42,155				
Industrial	**Acres**	**Square Feet**	**FAR**	**Buildable square feet**				
no constraints	201.3	8,768,628	0.40	3,507,451				

Wetlands	7.4	322,344	0.30	96,703			
Flood zone	11.7	509,652	0.36	183,475			
River buffer zone	15.3	666,468	0.04	26,659			
Slope over 15%	4.2	182,952	0.20	36,590			
Total	**3,058**	**133,206,480**		**3,850,878**			

1. Only single family calculated in residential multi-unit, as only single family is allowed by right.
2. DEP Zone 2 & 3 are unconstrained in all districts, as wellhead protection is limited.
3. No Agricultural District constraints, because there is no AD map.
4. Aquifer Protection District is not constrained, but based on 60,000 sq. ft. minimum lot size instead of 40,000 sq. ft.
5. For the Municipal & Industrial Districts, use maximum lot coverage of 40% for minimum constraint.
6. For all area in the floodplain, an additional constraint of 10% is applied.
7. For all area with slope, a constraint of 50% is applied.
8. For all area in wetlands, a constraint of 75% is applied.
9. For all area in the river 200-foot protective buffer zone, a constraint of 90% is applied.

Ludlow

1990 population	18,820		**2001 pop.**	**2002 pop.**	**2003 pop.**	**2004 pop.**	**2005 pop.**	**2006 pop.**
2000 population	21,209							
Rate of population change, 1990 – 2000	0.12694		21,478	21,751	22,027	22,307	22,590	22,876
2000 households	7,659							
People per household, 2000	2.77							
Agricultural	**Acres**	**Square Feet**	**Lots**	**People**				
no constraints	1,045.5	45,541,980	934	2585				
Wetlands	92.1	4,011,876	62	171				
River Buffer Zone	39.6	1,724,976	4	10				

Slope over 15%	34	1,489,752	15	42				
Total	**1,211**	**52,768,584.00**	**1,014**	**2,808**				
Residential A	**Acres**	**Square Feet**	**Lots**	**People**				
no constraints	136	5,941,584	305	845				
Wetlands	41.3	1,799,028	69	192				
Slope over 15%	6	257,004	3	7				
River Buffer Zone	10.1	439,956	2	6				
Total	**193.7**	**8,437,572**	**379**	**1,050**				
Residential A-1	**Acres**	**Square Feet**	**Lots**	**People**				
no constraints	7	304,920	6	17				
Residential B	**Acres**	**Square Feet**	**Lots**	**People**				
No constraints	17.0	740,520	69	191				
Business A	**Acres**	**Square Feet**	**FAR**	**Buildable square feet**				
no constraints	1.8	78,408	0.58	45,241				
Wetlands	3.8	165,528	0.43	71,632				
Total	**5.6**	**243,936**	**1.01**	**116,874**				
Business B	**Acres**	**Square Feet**	**FAR**	**Buildable square feet**				
No constraints	1.2	52,272	0.58	30,161				
Industrial A	**Acres**	**Square Feet**	**FAR**	**Buildable Square Feet**				
No constraints	37.3	1,624,788	0.58	937,503				
River buffer zone	2.8	121,968	0.06	7,038				
Slope over 15%	7.3	317,988	0.29	91,740				
Total	**47.4**	**2,064,744**		**1,300,188**				
Industrial C	**Acres**	**Square Feet**	**FAR**	**Buildable Square Feet**				

No constraints	341.4	14,871,384.00	0.5	7,435,692				
River Buffer Zone	14.0	609,840.00	0.1	30,492				
Slope over 15%	14.3	622,908.00	0.3	155,727				
Wetlands	60.0	2,613,600.00	0.4	980,100				
Total	**429.7**	**18,717,732**		**8,602,011**				

1. Buildout is based on available data from MassGIS, the Town of Ludlow, and the U.S. Census.
2. The buildout scenario addresses only those uses allowed by right and not uses allowed by special permit.
3. For all area over 15% slope a constraint factor of 50% was applied.
4. For all area in Wetlands a constraint factor of 25% was applied.
5. For all area in the outer riparian 100 to 200 foot buffer zone a constraint factor of 90% was applied.
6. Future residents are calculated using a rate of 2.77 persons per household
7. Lot coverage in the Industrial C district determined the FAR.
8. In the BA, BB, and IA districts, parking was the limiting factor.

South Hadley

1990 population	16,685		**2001 pop.**	**2002 pop.**	**2003 pop.**	**2004 pop.**	**2005 pop.**	**2006 pop.**
2000 population	17,196							
Rate of population change, 1990 – 2000	0.03063		17,249	17,301	17,354	17,408	17,461	17,514
2000 households	6,784							
People per household, 2000	2.53							
Agricultural	**Acres**	**Square Feet**	**Lots**	**People**				
no constraints	84.6	3,685,176	97	246				
Wetlands	5.1	222,156	4	11				
Slope over 15%	2.2	95,832	1	3				
Total	**91.9**	**4,003,164**	**103**	**260**				
Residence A-1	**Acres**	**Square Feet**	**Lots**	**People**				
No constraints	607.0	26,440,920	917	2323				

River Buffer Zone	46.9	2,042,964	7	18			
Slope over 15%	51.4	2,238,984	39	98			
Wetlands	12	500,940	13	33			
Total	**717**	**31,223,808**	**976**	**2473**			
Residence A-2	**Acres**	**Square Feet**	**Lots**	**People**			
No Constraints	51.7	2252052	132	335			
River buffer zone	5.2	226512	1	3			
Slope over 15%	6.5	283140	8	21			
Total	**63.4**	**2761704.0**	**142**	**359**			
Residence B	**Acres**	**Square Feet**	**Lots**	**People**			
No constraints	6.0	261360	24	62			
Slope over 15%	8.9	387684	18	46			
Total	**14.9**	**649044**	**42**	**108**			
Business A-1	**Acres**	**Square Feet**	**FAR**	**Buildable Square feet**			
	46.6	2,029,896	0.30	608,969			
Business B	**Acres**	**Square Feet**	**FAR**	**Buildable Square Feet**			
River buffer zone	1.2	52,272	0.09	4,443			
Industrial A	**Acres**	**Square Feet**	**FAR**	**Buildable square feet**			
no constraints	44.2	1,925,352	0.40	770,141			
Wetlands	40.7	1,772,892	0.30	531,868			
Flood zone	11.7	509,652	0.36	183,475			
River buffer zone	2.3	100,188	0.04	4,008			
Total	**99**	**4,308,084**		**1,489,491**			

1. Buildout is based on available data from Mass GIS, the Town of South Hadley, and the U.S. Census.
2. The buildout scenario addresses only uses by right and not uses allowed by special permit.
3. Business A-1 is calculated using the maximum lot coverage of 30%.
4. Industrial A is calculated using the maximum lot coverage of 40%.
5. For all area with over 15% slope, a universal constraint factor of 50% is applied.
6. For all area in wetlands, a constraint factor of 75% is applied.
7. For all area in the river 200-foot protective buffer zone, a constraint factor of 90% is applied.
8. Future residents are calculated using a ratio of 2.53 persons per household

Springfield

1990 population	156,983		**2001 pop.**	**2002 pop.**	**2003 pop.**	**2004 pop.**	**2005 pop.**	**2006 pop.**
2000 population	152,082							
Rate of population change, 1990 – 2000	-0.03122		151,607	151,134	150,662	150,192	149,723	149,255
2000 households	61,172							
People per household, 2000	2.49							

No developable land available in any zoning district; only redevelopment is possible

Chicopee

1990 population	56,632		**2001 pop.**	**2002 pop.**	**2003 pop.**	**2004 pop.**	**2005 pop.**	**2006 pop.**
2000 population	54,653							
Rate of population change, 1990 – 2000	-0.0349		54,462	54,272	54,082	53,893	53,705	53,517
2000 households	24,424							
People per household, 2000	2.24							
Residential A	**Acres**	**Square Feet**	**Lots**	**People**				

no constraints	469.4	20,447,064	1,431	3203			
Wetlands	2.0	87,120	5	10			
Flood Zone	26.1	1,136,916	72	160			
River Buffer Zone	125.8	5,479,848	38	86			
Slope over 15%	29	1,250,172	44	98			
Total	**652**	**28,401,120**	**1,590**	**3557**			
Residential B	**Acres**	**Square Feet**	**Lots**	**People**			
No Constraints	20.6	897,336	84	187			
Slope over 15%	3.3	143,748	7	15			
River buffer zone	18.1	788,436	7	16			
Total	**42.0**	**1,829,520**	**98**	**219**			
Residential C	**Acres**	**Square Feet**	**Lots**	**People**			
No constraints	25.4	1,106,424	103	231			
River buffer zone	9.3	405,108	4	8			
Total	**34.7**	**1,511,532**	**107**	**240**			
Residential D	**Acres**	**Square Feet**	**Lots**	**People**			
No constraints	23.0	1,001,880	160	359			
Business A	**Acres**	**Square Feet**	**FAR**	**Buildable Square feet**			
No constraints	15	666,468	0.60	399,881			
Slope over 15%	2	78,408	0.30	23,522			
River Buffer Zone	7	309,276	0.03	9,278			
Total	**24**	**1,054,152**		**432,681**			
Business B	**Acres**	**Square Feet**	**FAR**	**Buildable Square feet**			
No constraints	7	304,920	0.63	192,100			
Slope over 15%	5	213,444	0.32	67,235			
River buffer zone	1	43,560	0.06	2,744			
Floodplain	1.1	47,916	0.57	27,168			
Total	**14.0**	**609,840**		**289,247**			

Business C	Acres	Square Feet	FAR	Buildable Square feet			
No constraints	18	792,792.00	0.72	570,810			
Industrial	**Acres**	**Square Feet**	**FAR**	**Buildable square feet**			
no constraints	128.3	5,588,748	0.72	4,023,899			
Wetlands	67.1	2,922,876	0.54	1,578,353			
Flood zone	12.0	522,720	0.65	338,723			
River buffer zone	31.6	1,376,496	0.07	99,108			
Slope over 15%	24.6	1,071,576	0.36	385,767			
Total	**264**	**11,482,416**		**6,425,849**			
Industrial Planned Unit Development	**Acres**	**Square Feet**	**FAR**	**Buildable square feet**			
No constraints	172.1	7,496,676	0.51	3,823,305			
Slope over 15%	2.7	117,612	0.26	29,991			
River buffer zone	24.7	1,075,932	0.05	54,873			
Flood zone	1.6	69,696	0.46	31,990			
Wetlands	8.5	370,260	0.38	141,624			
Total	**209.6**	**9,130,176**		**4,081,783**			

1. In all districts, buildout is based on available data from Mass GIS and the City of Chicopee. As development changes the proportions of developable land, the accuracy of this data changes.
2. Residential D includes the required 20% open space in its calculations.
3. Business A calculations are based on the maximum lot coverage of 60%.
4. For all area in the floodplain, an additional constraint of 10% is applied.
5. For all area with over 15% slope, a universal constraint of 50% is applied.
6. For all area in wetlands, a constraint of 75% is applied.
7. For all area in the river 200-foot protective buffer zone, a constraint of 90% is applied.

Appendix F – Summary Paper on Zoning Recommendations

Zoning bylaw revisions were prepared for each of the five subject communities with lands in the study area surrounding Westover Air Reserve Base. Ludlow's proposed regulations are to amend the previously approved overlay district that currently restricts those uses that are believed to incompatible with airfield operations and general public safety.

Each community received suggested language to amend local zoning bylaws/ordinances. Key revisions include regulatory mechanisms that address the following:

- Restrictions on development of higher density residential uses, churches, schools, places of public gathering and similar higher intensity uses in APZs, primarily through the use of an overlay district
  (Note: This will require state enabling legislation – similar to legislation previously approved for Ludlow – to be submitted on behalf of Granby, Chicopee, Springfield, and South Hadley and approved by a majority vote of the legislature during its regular session.)

- Restrictions of releases of airborne substances, such as smoke, dust, and steam, which could interfere with aircraft operations.

- Restrictions on emissions of light or electrical currents which could interfere with aircraft operations.

- Prohibition and real estate disclosure for those areas in the CZs and APZ-I.

Also included are regulations that:

- Modify each community's table of uses to reflect changes recommended in the proposed overlay districts

- Suggested modifications to performance standards in areas surrounding WARB/WMA

Following is a model on which the communities' zoning bylaw revisions are based.

An Ordinance to include the area encompassing the CZs, APZs, and noise zones over 65 dB as an Airport Overflight Zone Overlay District and subject to the regulations established herein.

Airport Overflight Zone Overlay District (AOZ) covers the areas contiguous to Westover Airfield and in the CZs, APZs, or noise zones over 65 dB as shown on the adopted maps, which

are impacted by the operation of aircraft from this facility, including noise impacts and accident potential.

Purpose. The Airport Overflight Zone Overlay District is established to:

1) Provide for a range of uses compatible with airport accident hazard and noise exposure areas.
2) Prohibit the development of incompatible uses that are detrimental to the general health, safety and welfare.
3) Comply with Federal Aviation Administration (FAA) regulations.

six (6) subdistricts of the AOZ Overlay District, with names as amended by this Title, as shown in Table 1 below.

Table 1 Airport Overflight Zone Overlay Subdistricts	
SUB[-]DISTRICT DESIGNATION	**ABBREVIATED DESIGNATION**
Runway protection zone	CZ
Accident potential zone I	APZ-1
Accident potential zone II	APZ-2
65 – 70 Ldn (Day-Night Sound Level)	AE-65
70 – 75 Ldn (Day-Night Sound Level)	AE-70
75 – 80 Ldn (Day-Night Sound Level)	AE-75

The types of uses permitted and mitigation measures required differ for each subdistrict of the AOZ Overlay District, as shown in Table 2. Where a proposed use, building, or land is impacted by two (2) or more subdistricts of the AOZ Overlay District, the use, building, and/or land shall conform to the requirements of all applicable subdistricts, and where subdistricts impose conflicting requirements, the most restrictive of the requirements shall apply.

Special Uses. Additional uses may be permitted subject to securing a special use permit in each case, as provided for when indicated by a (SP) in the applicable AOZ Overlay subdistrict column of Table 2.

Prohibited Uses. Land uses within the AOZ Overlay District are restricted as indicated by the table except as provided in the Exemption section. All uses indicated by an N are not compatible and are not allowed, and all uses not expressly permitted in Table 2 are expressly prohibited unless a use is permitted as an exception under Exemptions.

Land Uses of Special Concern. Certain types of land uses represent special safety concerns irrespective of the number of people associated with those uses. Land uses of particular concern include:
(a) Uses Having Vulnerable Occupants: Uses in which the occupants have reduced effective mobility or are unable to respond to emergency situations shall be prohibited within all subdistricts. These uses include children's schools and day care centers (with 7 or more children), hospitals, nursing homes, and other uses in which the majority of occupants are children, elderly, and/or handicapped.

Exceptions.

1. Required use restrictions and noise attenuation requirements do not apply to property owned by the respective operators of the airports and utilized for airport functions.
2. Uses and structures established prior to the establishment of the AOZ Overlay District shall be allowed without regard to the additional standards of this overlay district, except that noise attenuated construction shall be required for the construction of any new habitable building, but shall not apply to any addition, remodel, or improvement to an existing building.
3. Except for the use restrictions within the CZ, APZ-I, APZ-II, AE-65, AE-70, or AE-75 subdistricts, uses and structures approved by any land use application prior to the establishment of the AOZ Overlay district shall be allowed without regard to the additional standards of this Part, provided that all conditions imposed on such approval are met. This exception does not preclude the imposition of additional conditions, including conformance to the requirements of this Section, if any extension of time to complete construction or a modification of plans is approved. The recording of a final map for a subdivision, the approval of a tentative map, or the issuance of a building permit for any building or structure in a CZ, APZ-I, APZ-II, AE-65, AE-70, or AE-75 subdistrict shall conclusively establish that such use, building, or structure is permitted upon the subject property pursuant to this Subsection.

The AOZ Overlay District land use restrictions, delineated in Table 2, shall be imposed in addition to and shall overlay all other districts that are encompassed or circumscribed by the AOZ Overlay District. The symbol for the applicable subdistrict shall be added to the Official Zoning Map of Clark County after the symbol of the underlying district.

Every five (5) years from July 1, 2005, the intermunicipal committee formed by the Memorandum of Agreement shall contact appropriate United States Air Force Reserve personnel to determine whether the Westover ARB maps reasonably reflect anticipated aircraft noise exposure and accident potential in the environs of Westover ARB based on a reasonable estimate of anticipated airport operations. If any updates to the Westover ARB maps are required, the Committee shall work with PVPC to prepare and present the updated maps for consideration by the Committee.

If any section of this ordinance or portion of thereof is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such holding shall not invalidate the remaining parts of this ordinance.

Appendix G – Articles on Land Use Incompatibilities surrounding military bases

Military Installations Pressured by Sprawl

October 2002

Incompatible residential and commercial development of land close to military installations can affect the ability of an installation to carry out its mission.

Incompatible residential and commercial development of land close to military installations can affect the ability of an installation to carry out its mission. Such development also threatens public safety because accidents sometimes occur in the areas surrounding an installation. The economic health of a community is affected if military operations and missions must relocate because of urban encroachment. States and local governments have begun to take actions to prevent encroachment and more measures are likely with heightened concerns about national security and economic health.

Some states are encouraging compatible land use around their military installations by having local governments:

- anticipate future urban growth patterns and create a strategic land-use plan that prevents encroachment near military installations
- establish high noise and accident potential zones near military installations and develop zoning codes that support compatible development of land located within these zones

---

Printed from the NGA web site.

STATES MOVE TO PROTECT LAND AROUND INSTALLATIONS



ANALYSIS
By Robert Boonstoppel

U.S. Army Environmental Center
Northern Regional Environmental Office Counsel

Seven states have passed legislation covering land use planning or zoning around military installations since the beginning of 2002: Arizona, California, Georgia, Hawaii, Oklahoma, Virginia and Washington.

The bills that have been enacted are generally of two types. The first imposes a notice requirement on local land use planners. The planners must notify military installations and give them an opportunity to comment when land use planning affects an area within a certain distance of the installations, typically 3,000 feet. California, Virginia, Washington and Hawaii have passed those types of statutes.

The second type requires land use planners to consider the impact of their planning on military installations and to ensure plans are compatible with the installation's mission. Arizona, California, Georgia, Oklahoma and Washington have enacted such laws. Arizona and Oklahoma laws focus primarily on military airfields. Florida and Kentucky introduced similar legislation in 2003, but it was allowed to die in both states' legislatures without being considered.

The most recent successful legislation, in Washington, became effective June 10. It is fairly typical. Localities with military installations in their jurisdictions must now notify the base commander of any planning or zoning changes. The law gives the commander a 60-day window to provide input on any incompatibility the proposed development or land use change would have with the base's mission.

The Washington bill also provides that jurisdictions "should not allow development in the vicinity of a military installation that is incompatible with the installation's ability to carry out its mission requirements." The bill does not define "incompatible" implying the commander will explain what is incompatible for the purpose of the bill.

The reasons we've seen so much activity by states on this issue is threefold. First, state legislators are sincerely concerned about national defense and the readiness of our armed forces.

Second, Defense Department and Army and Navy regional environmental coordinators have been working to raise legislators' awareness of the problems posed by incompatible development.

Third, states are trying to better position their installations for the 2005 round of Base Realignment and Closure.

All of these reasons are based on the recognition by states that military installations are important economic engines for states as well as vital to the national defense.

For example, Washington's legislation states: "The protection of military installations from incompatible development of land is essential to the health of Washington's economy and quality of life. Incompatible development close to military installations reduces the ability of the military to complete its mission or to undertake new missions and increases operating costs." Similar language can be found in many of the other state statutes.



State Strategies to Address Encroachment at Military Installations

September 2004

This recently updated issue brief describes what steps states and localities are taking to address this problem.

Across the nation, military installations are threatened by civilian encroachment. Incompatible residential and commercial development patterns surrounding military bases can jeopardize an installation's mission. When development increases near and around military bases, land-use conflicts arise between mission activities and local communities. Encroachment can threaten public safety and livability because people located near bases are potentially exposed to artillery fire, aircraft noise, dust, and even accidents. Ultimately, bases could close if encroachment restricts training and operational missions.

Military installations are often critical to state economies, generating thousands of jobs and billions of dollars in economic activity and tax revenue. To protect the missions of military installations and the health of the economies that rely on them, states and localities are taking steps to address encroachment. They include:

- drafting state legislation that requires compatible land use;
- enacting local zoning, planning, and noise requirements;
- using existing statutory authority to designate the land surrounding military installations as areas of critical state concern;
- acquiring property surrounding military installations; and
- creating state military advisory bodies.

Printed from the NGA web site.

Appendix H – Press Releases and Web Page Summary



Timothy W. Brennan, Executive Director
26 Central Street, Suite 34
West Springfield, MA 01089
(413) 781-6045

February 19, 2002

«Name»
«Title»
«Address1»
«Address2»
«City_zip»

Dear «Name»:

We are writing to invite you to attend a kickoff meeting to discuss two concurrent Westover Air Reserve Base (WARB) and Westover Metropolitan Airport (WMA) projects, the Department of Defense (DoD) Joint Land Use Study (JLUS) Update and the FAA Part 150 Noise Exposure Map Update. These projects involve the communities adjacent to WARB/WMA, which are: Chicopee, Ludlow, South Hadley, Granby, and Springfield. The meeting will be held on **Wednesday, February 27, 2002 at 6:30 PM, at Chateau Provost, 85 Montcalm Street, Chicopee, MA**

These projects are partially funded by the DoD Office of Economic Adjustment and the FAA. WARB is one of the largest employers in the region, with over 5,000 military reservists and civilian contractors, and the adjacent WMA covers a market area of over 1,200 square miles. The intention of these projects is to promote smooth economic growth in the region and compatible adjacent development.

The projects will address the noise and potential accident impacts of flights into and out of WARB/WMA, as well as the land areas that are affected. The upcoming kickoff meeting will promote community awareness of these projects, and provide an opportunity for questions. Presenters will cover the background of the JLUS and provide mapped information on land use changes and noise study models. Copies of the original Joint Land Use Study will also be available for review. Ultimately, these projects will provide valuable information to the affected communities, including assistance with noise mitigation and technical advice and assistance regarding measures and initiatives to lessen community impacts and promote compatible development.

We look forward to meeting with you on February 27. Please call either Denis Superczynski or myself at 413-781-6045 if you have any questions regarding the upcoming meeting or any aspect of the project. Thank you.

Sincerely,

Sabine Dietrich

Planner I, Land Use and Environment

WESTOVER AIR RESERVE BASE/WESTOVER METROPOLITAN AIRPORT
DoD JOINT LAND USE STUDY/FAA PART 150 STUDY

PROJECT OVERVIEW/KICKOFF MEETING
Wednesday, February 27, 2002
Chateau Provost, Chicopee, MA
6:30 PM

AGENDA

Introduction/Background/Opening Remarks
An introduction to the background and purpose of the Joint Land Use Studies (JLUS), and the Westover Air Installation Compatible Use Zone (AICUZ) Programs.

- Col. Martin Mazick, Wing Commander, Westover Air Reserve Base

Joint Land Use Concept Overview
A brief overview of the purpose of DoD-sponsored Joint Land Use Study Program emphasizing its application to Westover and the surrounding communities.

- David MacKinnon, Office of Economic Adjustment, Department of Defense

Noise Study & Assessment Update
An update and report of the Integrated Noise Model with future mitigation procedures and funding potential.

- Rick Dyment, HNTB

AICUZ Project Timeline and Public Information
A report and update of Westover's Air Installation Compatible Use Zone (AICUZ) Program,

including the link between the JLUS and AICUZ efforts.

- Public Affairs and Civil Engineering, WARB

Review of APZs and Land Use
A report on local development patterns and projections, location of APZs and noise contours, and preliminary locations of incompatible development.

- Denis Superczynski & Sabine Dietrich, Pioneer Valley Planning Commission

Question and Answer Session
Open Forum

Next Steps/Wrap Up

Town Clerk: Please post this notice per M.G.L. Ch. 39, Section 23, A-C.

Draft Agenda
Westover Metropolitan Airport - Noise Exposure Map (NEM) Update/
Westover Reserve Base - Joint Land Use Study (JLUS) Update
Place: Conference Call
Date & Time: January 10, 2002 11:00 AM

Participants:
Mike Bolton, Westover Metropolitan Development Corporation
Jack Moriarty, Westover Air Reserve Base
John Silva, Federal Aviation Administration
David MacKinnon, Department of Defense, Office of Economic Adjustment
Denis Superczynski, Pioneer Valley Planning Commission
Scott MacLeod, Massachusetts Aeronautics Commission
Jeff Senterman, Massachusetts Aeronautics Commission
Rick Dyment, HNTB Corporation

1. Purpose of Conference Call.

2. Background of JLUS Update.
   Description of the JLUS process.
   Summary of the JLUS Update Scope of Work.
   Key items that are required from the NEM Update for the JLUS Update.
   Proposed schedule for the JLUS Update.

3. Background of NEM Update.
   Description of the NEM & NCP process.
   Summary of the NEM Update Scope of Work.
   Key items that are required from the JLUS Update for the NEM Update.
   Proposed schedule for the NEM Update.

4. Discussion of the flow of information between the JLUS and the NEMU. See accompanying "JLUS NEM Flow-8.XLS" file.

5. Consensus for assignment of work effort/analysis responsibility.

6. Discussion / development of a consolidated milestone / delivery schedule for the JLUS Update and the NEM Update.

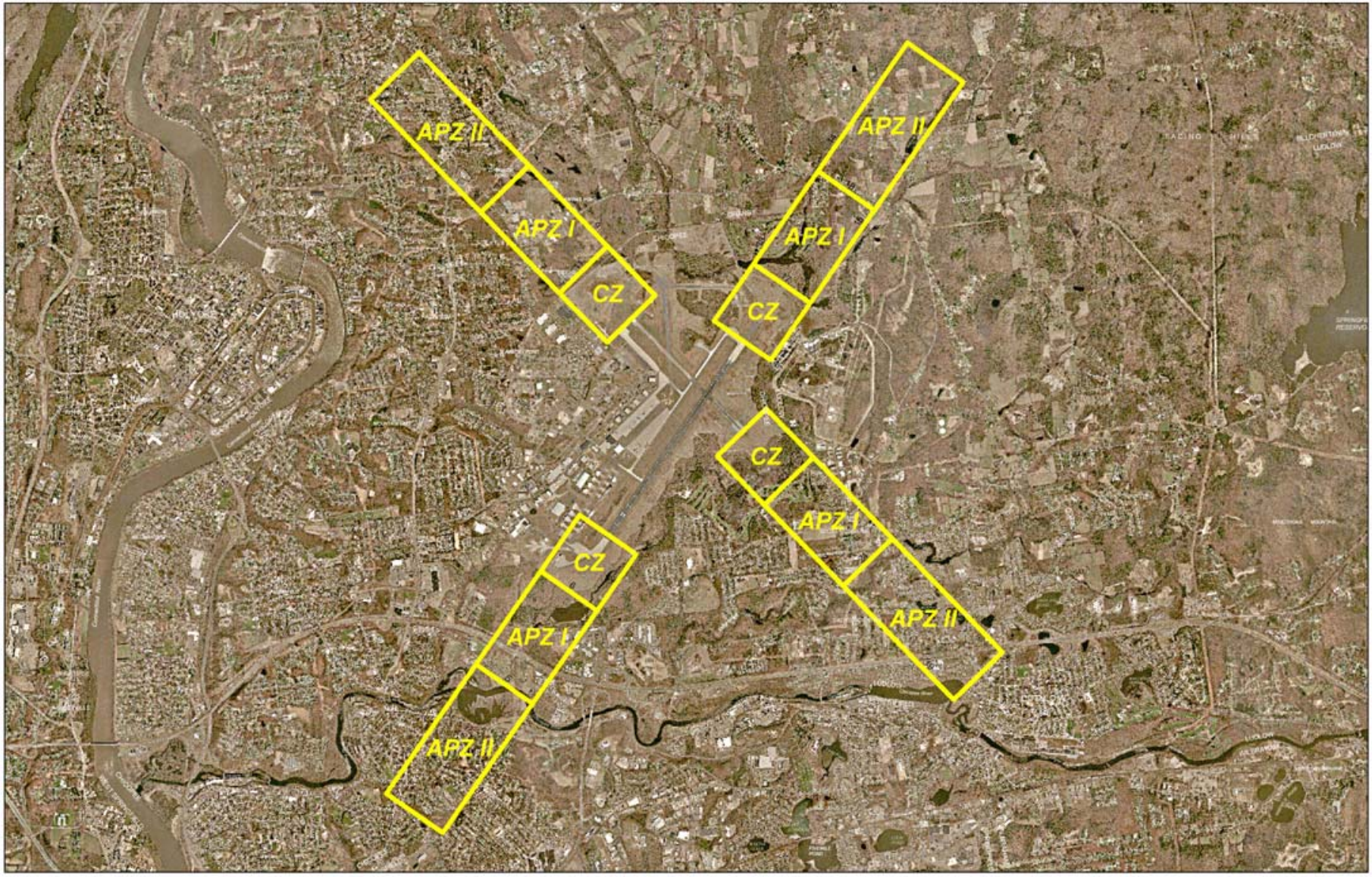


Westover Joint Land Use Update

Pioneer Valley Planning Commission

Original JLUS Study

- Completed in 1995
- Focused on the communities of Chicopee, Granby, Ludlow, South Hadley, Springfield and West Springfield
- Goal was to determine land use incompatibilities with flight operations in terms of accident potential
- Recommendations incorporated FAA Part 150 noise incompatibility measures
- Six communities looked at recommendations and took varying actions


APZ II
APZ I
CZ
APZ II
APZ I
CZ
CZ
APZ I
APZ II
CZ
APZ I
APZ II

Original JLUS Recommendations

1) Consider APZs in all planning decisions
2) Create a multi-town committee to coordinate land use compatibility efforts
3) Petition for legislation for home rule to prohibit developing schools, churches, day care centers in APZs
4) Establish building codes for areas impacted by high noise
5) Establish overlay zoning districts to deal with incompatible development in APZs

Original JLUS Recommendations cont.

6) Establish performance standards in overlay districts to ensure proposed uses do not create disturbances incompatible with aircraft operations (dust, light, electrical current, birds)
7) Require public buildings within noise contours to have soundproofing
8) Amend subdivision regulations to require full disclosure for properties within noise contours and/or APZs
9) Encourage disclosure statements in real estate rental agreements for properties within noise contours and/or APZs
10) Ensure that local community maps show locations of APZs and noise contours

Present Day – JLUS Update

- WARB & WMDC requested update
- Original strategies not yet implemented
- Growth and development pressure continue
- Continue noise and compatibility studies
- Offer continuing technical assistance to town planning boards

JLUS Update Action Steps

- Review of Land Use & Development Trends - GIS Mapping
- Ground Truth Verification
- Review Existing Zoning Regulations
- Five-Year Projected Buildout Analysis
- ID of Zoning Needs

FINAL STEPS

- Community Outreach - meetings with planning boards
- Press releases and Web Page on Study Results
- Brochure on Base Impacts
- Ongoing Technical Assistance
- Memorandum of Agreement
- State Legislative Initiatives

Web Page Summary-

Home page with orthophoto of the study area and the following links:

- August 1995 JLUS study synopsis and recommendations
- 2002 noise study synopsis and recommendations
- GIS maps of JLUS and noise study
- Brochure of airfield impacts
- Project Report containing:
    - Model Memorandum of Agreement
    - Model MA legislative initiative
    - Model overlay district bylaw

Appendix I – Brochure on WJLUS

(PDF)

Westover - History and Overview

Westover ARB has been in operation since 1940 and served as a bomber training base and port of embarkation/ debarkation during World War II. Following the war, the base was a staging point for the Berlin Airlift, a headquarters of the Military Air Transport Service system until April 1955. From that time until 1974, the base was a major Strategic Air Command installation.

Since May 19, 1974 Westover has been an Air Force Reserve Command base. From that time until October, 1987 the 439th Tactical Airlift Wing operated C-130 Hercules and C-123 Provider aircraft. The wing converted to C-5As in 1987 and the unit eventually became designated as the 439th Airlift Wing.

The 439th Airlift Wing is the nation's largest Air Force Reserve installation. The base is the closest fully operational military installation to Europe, giving it a strategic advantage in military operations. Currently, 2,500 reservists are assigned to the wing at Westover. They train one weekend each month and also serve a 15-day annual tour of duty each year. The 337th Airlift Squadron is the wing's flying unit at Westover.

Westover is operated on a day-to-day basis by a workforce of about 1,000 civilians, including 488 air reserve technicians.

The Mission. The 439th Airlift Wing is capable of providing worldwide air movement of troops, supplies, and equipment. Airlift also involves airdrop and combat off-load operations. Support units satisfy communications, engineering, logistical, medical and security requirements.

The peacetime mission includes recruiting, training and supervision of personnel to assure mission readiness. The 439 AW is also responsible for the management of aircraft maintenance and all assigned Air Force combat support real property, equipment and supplies.

Joint Land Use Study Program

Military installations generate considerable economic activity that attracts people and businesses in order to take advantage of job opportunities and to provide goods and services needed to support the installation. But they also create noise and can present potential for accidents on and off-base, most often associated with aircraft landing and take-off. For this reason, the Department of Defense (DoD) established the Air Installation Compatible Use Zones (AICUZ) Program in an effort to coordinate the requirements of military missions with the development occurring in the surrounding civilian communities.

AICUZ reports describe three basic types of constraints that affect, or result from, flight operations. The first constraint involves areas that the Federal Aviation Administration (FAA) and DoD have identified for height limitations. The second constraint involves noise zones plotted in increments from 65 decibels (dB) to over 80 dB. Over 65 dB exposure is considered to be significant and use of land normally should be limited to industrial, manufacturing and transportation and resource production. Detailed information for Westover Air Reserve Base (WARB) is available under separate cover. The noise exposure area over 65 dB coincides roughly with that covered by the third constraint, which involves accident potential zones based on statistical analysis of past DoD aircraft accidents.

The Air Force completed a study of Air Force accidents that occurred between 1968 and 1995 within 10 nautical miles of airfields. The study considered 838 accidents and revealed that 68 % occurred on or adjacent to the runway in a corridor 3,000 feet wide. Based on this type of accident data, the Air Force identified three accident potential zones; the Clear Zone (CZ), Accident Potential Zone I (APZ-I), and Accident Potential Zone II (APZ-II). The CZ is at either end of a runway and measures 3,000 feet by 3,000 feet in area. Within the CZ, the potential for accidents is the greatest (27.4%). Within the CZ area there should be no above-ground structures of any kind, and land-use activity should be severely limited only to agriculture (except livestock).

APZ-I is a rectangle 5,000 feet long by 3,000 feet wide, where the study found that 10.1% of aircraft accidents occurred. Within the APZ-I, suggested land uses are limited to manufacturing, transportation and communications, trade, automotive sales, services and agriculture. Lower densities of permitted activities are also suggested. Residential land uses of any type are not recommended, nor are places of assembly, schools, hospitals, child or adult care facilities, and so forth.

APZ-II is the farthest accident potential zone from the end of the runway and is also 7,000 feet long by 3,000 feet wide. The study found that only 5.6% of accidents occurred in this zone. Recommended land uses and densities are less stringent than the previous zones. Severely limited residential uses are recommended at maximum densities of one to two units per acre. Multifamily, townhouse or apartment dwellings are not considered compatible in APZ-II. Neither are hospitals, nursing homes, educational services, or eating and drinking establishments.

In 1985, DoD initiated a new program to help community leaders better understand and incorporate the AICUZ technical information into local community plans and zoning ordinances. Congress authorizes DoD to make grants to State or local governments for adjustment planning required by the encroachment of a civilian community on a military installation. The DoD Office of Economic Adjustment (OEA) manages the Joint Land Use Study (JLUS) Program, which is a cooperative land-use planning effort between affected local government and the military installation. This

Continued on other side

Joint Land Use Study, continued from other side

brochure is funded by the JLUS Program. The recommendations developed during this study will help to support adoption and implementation of compatible development that safeguards the military mission and protects the health, safety and welfare of the public.

These recommendations include:

- Massachusetts legislative initiative to designate the CZs, APZ-Is, and APZ-IIs as "Areas of Critical State Concern", requiring state approval for major development projects that could have statewide impacts.
- MA legislative initiative to rescind the exemption in state zoning for educational institutions or churches, thus allowing for their prohibition in the CZs and APZs.
- Real estate disclosure in the APZs for each community in the CZs and APZs (Chicopee, Granby, Ludlow, South Hadley and Springfield).
- Zoning overlay districts in each community having CZs and APZs, prohibiting schools, churches, nursing homes, hospitals and day care.
- Zoning overlay districts in each community having CZs and APZs, prohibiting all development in CZs, and residential development and manufacturing that causes dust or other sight reductions in APZ-Is
- A Memorandum of Agreement between all municipalities in the CZs and APZs to protect land from incompatible development.
- Good and reliable communication about land development and redevelopment between Westover Air Reserve Base and Westover Metropolitan Airport officials and community officials and representatives.

Base has significant Impact on Area Economy

Westover's 2,500 acres make it the largest Air Force Reserve base in the country. Westover is home not only to the 439th Airlift Wing, but 17 tenant units as well.

This base added more than $183 million to the economy of western Massachusetts during the fiscal year 2002-2003. During the timeframe from October 1, 2002 to September 30, 2003, the base's fiscal impact on communities located within a 50-mile radius totalled $183,542,883.

The base's total salary for the year was $103,204,849 with military pay making up the largest portion, $67,146,416. Much of this came from more than 1,000 reservists who were activated during Operations Iraqi Freedom and Enduring Freedom.

Civilian salaries stood at $33,953,294, while civilian contractors and non-appropriated fund workers—employed in such places as the base exchange, shoppette-gas station, bowling alley, gymnasium, Westover Club and billeting office—took home another $2,105,139.

The number of people employed by the Air Force on the base, totals 3,607, including 2,567 active-duty and reserve military personnel. There are also 770 appropriated fund federal employees and 270 contract and non-appropriated funds workers.

Construction projects contributed $5,400,253 to the total while service contracts added $19,566,210. Other expenditures, which include materials, equipment and supplies capped out at $20,520,859. As a result of the base population, the Air Force calculated that an estimated 988 jobs were created in the local area resulting in an annual payroll of $34,850,712.

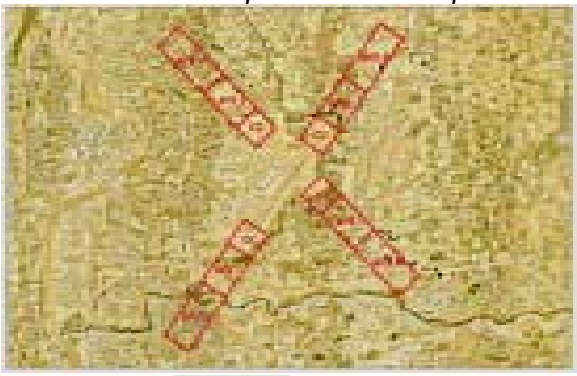
In addition, the Military Entrance Processing Station (MEPS) moved from downtown Springfield, MA and opened on base in September 2003.

"I am pleased that Westover is able to play such an integral role in the economic well-being of the Pioneer Valley, " said Col. Wade Farris, 439th AW commander. "Our relationship with the surrounding communities has never been better and I want to offer my thanks for all of their support during the past couple of years."

WESTOVER JOINT LAND USE - PARTNERS WITH COMMUNITY



sponsored by:
DOD Office of Economic Adjustment
Westover Air Reserve Base
Western MA Metropolitan Dev. Corp.



Produced by: PIONEER VALLEY PLANNING COMMISSION (PVPC)

Appendix J – Memorandum of Agreement: Current Draft

MEMORANDUM OF AGREEMENT FOR THE PROTECTION OF VIABLE MILITARY AND CIVILIAN OPERATIONS AT WESTOVER AIR RESERVE BASE

By and among
the Towns of Granby, Ludlow, and South Hadley,
the Cities of Chicopee and Springfield
Westover Metropolitan Development Corporation,
Westover Air Reserve Base,
Pioneer Valley Planning Commission, and
Other concerned or interested parties or citizen groups.
(subject to final approval of all signatories)

This memorandum is agreed to by and among the municipalities of Chicopee, Granby, Ludlow, South Hadley and Springfield, hereafter called the Municipalities, and the Pioneer Valley Planning Commission, hereafter called PVPC, for the purpose of protecting public health, safety and welfare; protecting national investments in Westover Air Reserve Base, hereafter called WARB; and ensuring continued job growth at the WARB.

Whereas, the Municipalities and PVPC support the concept of cooperative planning and review of land use and development for the purpose of ensuring the coordination of efforts to achieve the most compatible land uses in the communities and the airports; and

Whereas, the Municipalities and PVPC increasingly recognize that Westover Air Reserve Base and Westover Metropolitan Development Corporation have a significant impact on the land use and economy of the region; and

Whereas the Municipalities and PVPC recognize that early and consistent consultation with all possible interested parties is the most valuable tool for ensuring that community concerns are addressed in the airport planning process;

THEREFORE, BE IT RESOLVED that the Municipalities and PVPC agree to work cooperatively to protect viable military and civilian operations at this joint use air facility.

IT IS FURTHER RESOLVED that the municipalities and PVPC agree to work in good faith to accomplish the following goals relative to WARB viability:

Section 1. Role of PVPC
PVPC will make available its Local Technical Assistance to aid communities in developing land use policies and regulations, in and around the designated APZs that serve to enhance the economic and military activities at WARB and WMDC.

Section 2. Role of Communities
The Towns of Granby, Ludlow, and South Hadley, and the Cities of Chicopee and Springfield shall have the following roles:

1. To continue to develop and put forward to the community's legislative body appropriate and effective land use regulations that protect public health and safety in the APZs, discourage inappropriate uses in and around the WARB, and enhance the economic and military viability of the joint use base.
2. Work cooperatively with WARB and PVPC to pursue public awareness of the land use issues related to Westover Air Reserve Base and Westover Metropolitan Development Corporation.
3. To assist and advise all appropriate municipal agencies, boards and authorities in their policies and planning as they relate to land use impacted by airfield operations.

Section 3. Amendments

This Memorandum may be amended at any time with the approval of all signatories. Any signatory to this Memorandum may rescind their participation through a majority vote of the signatory's governing body, including the Board of Selectmen for a town and the City Council for a city.

Section 4. Effective Date/Authorization

This Memorandum will become effective for signatories when it is signed by two or more participating parties.

Chair, Granby Board of Selectmen	Date
Chair, Ludlow Board of Selectmen	Date
Chair, South Hadley Board of Selectmen	Date
Mayor, City of Chicopee	Date
Mayor, City of Springfield	Date

Appendix K – Model Massachusetts legislative Initiatives

Proposed Legislative Language Authorizing
Westover Communities to Restrict "40A Exempt" Uses

Granby

House No. _____

By Mr. Lees of Granby, petition of Brian P. Lees and Ellen Story relative to zoning restrictions within the Westover Airbase Compatibility Overlay District in the Town of Granby.

The Commonwealth of Massachusetts

In the Year Two Thousand and Four.

AN ACT RELATIVE TO ZONING RESTRICTIONS WITHIN THE TOWN OF GRANBY.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Notwithstanding the provisions of section three of chapter forty A of the General Laws or of any other general or special law to the contrary, the Town of Granby is hereby authorized to prohibit the building of schools, day care centers, and houses of worship in the Westover Airbase Compatibility Overlay District of said town by means of a zoning ordinance or bylaw adopted by said town according to law.

Chicopee

House No. _____

By Mr. Wagner of Chicopee, petition of Michael R. Knapik and Joseph F. Wagner relative to zoning restrictions within the Westover Airbase Compatibility Overlay District in the City of Chicopee. *[Subst: Thomas Petrolati or Linda J. Melconian?]*

The Commonwealth of Massachusetts

In the Year Two Thousand and Four.

AN ACT RELATIVE TO ZONING RESTRICTIONS WITHIN THE CITY OF CHICOPEE.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Notwithstanding the provisions of section three of chapter forty A of the General Laws or of any other general or special law to the contrary, the City of Chicopee is hereby authorized to prohibit the building of schools, day care centers, and houses of worship in the Westover Airbase Compatibility Overlay District of said city by means of a zoning ordinance or bylaw adopted by said city according to law.

South Hadley

House No. _____

By Mr. Scibak of South Hadley, petition of John W. Scibak and Stanley C. Rosenberg relative to zoning restrictions within the Westover Airbase Compatibility Overlay District in the Town of South Hadley.

The Commonwealth of Massachusetts

In the Year Two Thousand and Four.

AN ACT RELATIVE TO ZONING RESTRICTIONS WITHIN THE TOWN OF SOUTH HADLEY.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Notwithstanding the provisions of section three of chapter forty A of the General Laws or of any other general or special law to the contrary, the Town of South Hadley is hereby authorized to prohibit the building of schools, day care centers, and houses of worship in the Westover Airbase Compatibility Overlay District of said town by means of a zoning ordinance or bylaw adopted by said town according to law.

Combined House Bill for Four Communities

House No. _____

By Mr. Rosenberg of Amherst, petition of Stanley C. Rosenberg and Joseph F, Wagner relative to zoning restrictions within the Westover Airbase Compatibility Overlay Districts in the Cities of Chicopee and Springfield and the Towns of Granby and South Hadley.

The Commonwealth of Massachusetts

In the Year Two Thousand and Four.

AN ACT RELATIVE TO ZONING RESTRICTIONS WITHIN THE CITIES OF CHICOPEE AND SPRINGFIELD AND THE TOWNS OF GRANBY AND SOUTH HADLEY.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Notwithstanding the provisions of section three of chapter forty A of the General Laws or of any other general or special law to the contrary, the Cities of Chicopee and Springfield, and the Towns of Granby and South Hadley are hereby authorized to prohibit the building of schools, day care centers, and houses of worship in the Westover Airbase Compatibility Overlay Districts established in said cities and towns by means of zoning ordinances or bylaws adopted by said municipalities according to law.

Appendix L – WARB JLUS committeemembers

Name	Agency	Mail Address	Email
David MacKinnon	Dept. of Defense, Office of Economic Adjustment	Office of the Secretary of Defense 400 Army Navy Drive, Suite 200 Arlington, VA 22202-2884	david.mackinnon@osd.mil
Mike Bolton	Westover Metropolitan Development Corp.	Westover Metropolitan Airport 255 Padgette Street, Suite Two Chicopee, MA 01022-1329	sales@wmass-arptcef.com
John Silva Manager, Environmental Systems	Dept. of Transportation, Federal Aviation Administration	Airports Division, ANE-600 New England Region 12 New England Executive Park Burlington, MA 01803	john.silva@faa.gov
Col. Martin Mazick	Wing Commander	Westover Air Reserve Base	martin.mazick@westover.af.mil
Andrew Milroy	Natural/Cultural Resource Mgr.	251 Patriot Ave., Suite 1, WARB	andrew.milroy@westover.af.mil
Jack Moriarty	Westover Air Reserve Base		Jack.Moriarty@westover.af.mil
Gordon Newell	Public Affairs	Westover Air Reserve Base	gordon.newell@westover.af.mil
CAPT Mike Pirrone	Base Operations	Westover Air Reserve Base	mike.pirrone@westover.af.mil
Scott MacLeod	Mass Aeronautics Commission		Scott.McLeod@mac.state.ma.us
Jeff Senterman	Mass Aeronautics Commission		Jeff.Senterman@mac.state.ma.us
Rick Dyment	HNTB	50 Milk Street Boston, MA 02109	rdyment@hntb.com
Alan Blair	WMDC		a.blair@ecdev-wma.com
Denis Superczynski	PVPC	26 Central Street West Springfield, MA 01089-2787	djssuper@pvpc.org
Jim Scace	PVPC	26 Central Street West Springfield, MA 01089-2787	jscace@pvpc.org
Sabine Dietrich	PVPC	26 Central Street West Springfield, MA 01089-2787	s_dietrich@pvpc.org
Renee Pfeilsticker	BTG		rpfeilstic@deltabtg.com
Al Chwalek President	Galaxy Council	70 Tapley Street Springfield, MA 01104	
Ken Delude			k.delude@ecdev-wma.com