MICROCLIMATES IN THE SIX DOWNTOWN AREAS

1) OVAL PARK AREA: has the public downtown's most favorable microclimates, with clustered buildings and some trees now offering a gradient variety of sun and wind exposures-- including (yet undefined) winterwind protected sunpockets as well as open area. Unfortunately there is no pedestrian space delineation or amenities to make full use of these more comfortable important busy places, and there is also need for summer shading of direct sun and the ominus glare from buildings, aspahalt expanses, and autos. As attested by the behavior of people now sitting on pavement or steps, these pockets are in demand. There is oppportunity for new pedestrian space-- summer shaded and winter protected-- to take advantage of the very subtle range of microclimates about the buildings and park: the **Courthouse southwall** and its covered steps (the town's most accessable south wall, open toward the east for summer breeze), the **Congregational Church frontage** (which has more winter-wind protection, and the **Church Enclave** (the town's most wind protected space; with sun, or afternoon shade from the courthouse wall). More exposed wind (for better/worse in summer/winter) can be felt by moving southward into the **Oval Park central area.** Large deciduous trees in the park provide a rare peppering of good summer shade to select at the south edge (but the pedestrian space under them is limited) and more trees are needed, especially at **edges** of paving, as all buildings. Cold winter to cooling summer winds all circulate within the park from the Eaton area, and fortunately the former can be diminished as one retracts toward the architecture and the latter is more retained. Greenhouse opportunity exists in the area. The **bus shelter** should be improved especially for winter waiting. ((See south 'Main Street' description for adjacent overlappping microclimates)).

2) MAIN STREET AREA: has a dynamic, basically dualistic microclimate in that the east and west **sidewalks and facades** have opposite sun/wind orientation. (This duality is mediated within center line of the street corridor. Also, the small nooks, nitches, alleys, and larger spatial pockets between sides of buildings add a variety of sub-microclimates, as listed below). All this gives options for people to somewhat lessen discomforting extremes and engage in variety of microclimates as they wish. However, OVERALL, Main Street is needlessly too hot and glaring in summer, and devastingly windy cold in much of the winter-- especially uncomfortable when one attempts to walk even a third of its length, for example from the Oval Park Area to the library. This trouble is compounded by rain and snow acceleration by the winds, and lack of shelter. (Although there are some functioning awnings now). Plowed snow, melting slush, occasional downpours impede upon the sidewalk, add splashing and general discomfort. The problems of extreme winter wind cold are not much solvable at the actual **sidewalks**, but can be helped by providing adjacent protected sunpockets **between buildings**, additional overhead protection (like now at McClellands), semi or enclosed spaces or greenhouse. Most of the extreme summer sun discomfort can be solved by shade trees along both sidewalks and in potential sunpocket areas at voids between buildings: (**Southside of Morgan House southwall/Chopper Entry; Lee Hardware southwall/Eaton Street Entry; the space across from Academy Street; Theater Street; Elm Street**). Functional awnings should be made continuous and porch options would be desireable. (The **Morgan Porch** is a prototype for all town: it has extended yearround warmth and cozy summer shadow). All these considerations would provide enjoyable summer shade as well as protection from rain/snow/cold/wind to extend the comfort time of the year. The **library** building has four sides of microclimate: most important is the front and south side gets great sun, at times needing shade; and the back is shadey for summer at the door, sunny at a distance and well winter protected. There is insufficent precipitation protection. Architectural court, porch, greenhouse possibilites exist at the library perhaps more than anywhere in town, to extend interior to exterior microclimate comfort-time through the year.

3) NORTHEND AREA: has predominate places generally exposed to wind, sun, precipitation-- plus has a mixture of variously protected smaller places. All have good comfort-time potential if protective treatment (and extra pedestrian space) is added. Though the northend lacks the quantity of public activity found in south downtown, it's yearound importance as neighborhood/working zone makes microclimate crucial-- for comfortable sitting, walking, outdoor eating, gathering, in some cases for playing. **Center Street has a exposed south-facing facade** (with unfortunately narrow sidewalks, and limited awnings) with full sun through the day, especially at **Joe's building**. This sunshine is wonderful through much of the year for neighborhood pedestrian activity (eg a resident standing in morning sun with coffee at the side of Joes door, looking down main Steets length, inspired by oncomming light and shadow); however shade is needed (here or nearby) during extremes of summer. Besides excessive heat, ground and facade glare is also hazadous upon eyes and upon visibility. Fortunately here also receives good cooling summer breezes and some warm spring/autumn winds that directly hit and then laterally massage the facade area (although it may be a bit gusty at times). Unfortunately, in winter and some fall/spring periods, cold northwest winds barrel up Center Street and sweep across the sidewalks making it harsh and difficult to walk; snow drifts often accumulate, ice and rain also cause an unusually dangerous roadway. The **east side Joe's space** against the wall has partial sun in earlyer part of day (though lacks summer breeze) and is shaded in the afternoon-- in complement to the hot front facade-- and therfore would be inviting in deep summer. More sun and breeze is found eastward of this wall, if one desires. It is important even if used for parking, that this space protects from ominus winter wind (but in places where apt to be shadey-cold against building in afternoon). Microclimates around **Eagle Mill and rear of Joes** , and **lower Center Street north side stores** vary the full gammit, offering a variety of pedestrian possibilites for workers, visitors, residents. Greenhouse or atrium potential abounds here as well. Buildings in lots , such as **KFC** have sub areas relating to buildings 4 sides. **The vacant grass lots** at the intersection of north Main Street and Center Street are to be considered climatically special: an unbuilt, totally exposed open, naturally elevated site-- this grass site is the best place in downtown to sample pure Berkshire climate. (((More than anywhere in town, this spot catches and presents UNALTERED full Berkshire sunshine, rain, snow, humidity of air, fielded dew, scents, sounds, fog ("rolling up the hill from the river"), and free winds sweep upward and over the site from the river (nw winter sw summer) or down from over the top of the residential hill. (Spring gusts carry here a flower scent, summer breezes are sensed deliver from the deep green foeset, autumn winds with foilage scent mingle with carried leaf, and the winters' fullest cold wind with occasional smoke are here revealed). This spot feels privligedly "perched" close to the clouds when they are there, and to stars and moon when it is night. The flatness of site collects the snow and holds it proudly, allowing it to melt at a moderate pace (compared to the accelerated or delayed pace of sloped or built sites. Here landform berms or structures would be needed just to moderately protect from the winter wind; and shade would be desired proximate in summer. However we offer the intuition from our site visit that this grass site has a particular value in its genuine open "natural" exposure-- the one place that perhaps should not be climate-protected, subdued or contrived by re-microclimatization-- as long the nearby spaces (Joes facade, Joes east lot, the Mill, KFC areas) are protected and more comfortable. This grass spot taps all weather-- it is a truely climatically rich and dynamic site, whose "raw" side might best be preserved as a unique place in town, even if at the expense of complete Olgayian comfort. (If this description seems exaggerated, one should consider how its sense can be capture in proposals))). All in all, the Northend can be made more comfortable and accomodating in most places, while allowing the grass site (however proposed) to offer an occassional "experiential departure" into the genuinely sublime component of Berkshire climate.

4) EATON/BACKSIDE/RR AREA: is a relatively large open area, that suffers the town's most extreme seasonal discomforts, by its wide exposure to cold winter wind and hot summer sun, and being unprotected from rain & snow (by lack of overhang, and wetness from poor drainage, and snow storage). In summer the large asphalt and dust areas often radiate intolerable heat and glare; especially hot areas are the wall-reflective **backside Main Street buildings** during afternoon, the **Arobi** sunpocket, and **south/west sides of the Eaton Street buildings** (eg Lee Pizza, Post Office) and the **Price Chopper** building. Some enclaves, the backside of Main Street buildings and the north and west of the other buildings do get morning westside shade, afternoon eastside shade, and predomiant north shade-- and the nearby woodland edge is shade riddled. However, a much greater UNIFIED summer shade is needed near most buildings and penetrating the whole **parking lot**, especially where people walk or park cars in heat. In winter, early spring, and late fall, most of the area can be very gusty (sand blowing around) and a very cold place to walk, to/from parked cars and freely between buildings . The snow piling & melting, drainage additionally troubles the parking, driving and walking circulation/organization. However, during cooler summer days, and good warm spring & fall days the site is very comfortable, and in fact "season-invigorating" (due to the site's agoric aspect, surrounding natural resources and distant views, that entail a sense of good atmospheric quality. (It is a climatically pleasant place in many ways due to the surrounding landscape-- especially the river corridor-- that delivers an interesting variety of purity light, scent, frequent welcome breeze & moderate temperatures that can fill the Eaton/Backside area incredibley. (Rapid fluctuation of temperature and wind occur, especially in the parking lot). For proposals: Shading the area for hot summer sun for parking, walks, and spaces by trees would be easy and effective. Specifically buffering the winter winds in the lot would be difficult if even worth attempting, but use of (summer shaded) sunpockets at buildings (plus some overhang/shelter) holds great promise to provide a stategy of "proximate winter moderation": The **Arobi Building** has a prime enclave already wind protected and only needs summer shade; The **Backside Main Stores and apartments** would need more structural wind buffering but are wonderful sunpockets, and also need summer shade. (See too the "Main Street description" above regarding the all important sun oriented **Lee Hardware southwall/Eaton Street space**, and the **Morgan/Chopper space** that enjoin here). Also the **free standing buildings** (eg Post Office, the Eaton Street stores, and Price Chopper) have four sides of microclimate to choose from and moderate-- that are not now taken advantage of respective of their desireable times (eg their south sides block winter wind, and get sun for winter; their north sides are sometimes shaded for summer; their side spaces are mild for spring and fall transition periods and view the river. And also, they must be dealt with respective of the negative times-- the entrance to **Eaton Street buildings** in the winter, the **backside Main Street store's** rear doors when too hot cry out for moderatated microclimate). In all, having chooseable areas of yearound comfort is especially important in the Eaton/Backside Area, if it is to become enhanced as a local and regional cbd zone, as well as a place for public arrival and bulk parking.

(Design addendum:)

"DIVERSITY-WITHIN-OVERALL UNITY" VIRTUES FROM CLIMATE: Climate brings both "unity" and "diversity" within the physical town that has subtle value that should inspire proposals. Regarding UNITY: First, climate originally partly determined much of the assimulated physicality of Lee, with resultant visual and functional harmony. Some aspects are stylistic, but others are truely pragmatic... climate-defensive, climate-engaging or cost/energy efficient. For example: the cluster density and location of buildings; the architectural awnings, recessions, overhangs, chimneys, the many pitched roofs or other strong flat roofs with large cornice gutters and drainpipe; the many but conservative size windows, some shutters, and strong walls to brave the winter; porches and sun orientations of buildings; the old town common for enjoying New England weather; the crop field successsions etc). Second, it has unifying influence on peoples activity: the stirring of individual souls into downtown behavior, and the flow of groups correspond harmoniously with seasonal and daily climatic pattern. (This, however, is much more evident in fall/summer weather of the nearby tourist towns, partially because Lee is more limited by unfavorable microclimates). Third, climate gives unified cosmic & geographic orientation to residents and visitors-- daily by the sun's rising to zenith and setting; seasonally by sun angles, daylength, temperature, wind direction, precipitation, and plant/wildlife cycles, even star/planet/moon phases-- this is enriching environmental content. (It is true that a visitor, after driving the straight pike and then winding rt 2 roadway, have for their first time a steady n/s alignment of shadows and sun that reveals geogaphic context). Fourth, and perhaps most intriguingly, the town's unified 'north-south grid alignment' is experientially enhanced in contrast to the 'dynamic geometry' of natural climate that combs across it and vice versa: the e/w arc of the sun, the cross-angles of wind, sun/shadow, and vertical drop of precipitation all are natural juxtapositions to the manmade. (In every single weather incident, and in total their long term climatic pattern that saturates the physical and human life of Lee-- the downtown 'stands in unison', because all it's parts share similar responses. Eg the whole facade of south Main Steet participates shadow sun-dial sequence; or, every house simultaneously shares it's east morning sun; all walks, roofs and streets are together blanketed by snow, as is the church, and the distant hills; the post-thunderstorm sunshine streaks across and dries all of Lee at once, etc). While on the other hand... the climate brings out DIVERSITY of the physical town-- the different areas and buildings have further distinction as sub-places by their different microclimate. (ie The town's composition of different shape, sized, landsuse zones and their different orientations all juxtaposed to each other and their different defining structures etc-- have those differences exaggerated by their different microclimatic phenomena-- the light, shadow patterns of buildings, radiation, the wind eccentricities etc). Moreover, each building separately, because of its n/s compass orientation, enjoys a clear diversity of private microclimates on its four sides and interior. In sum, we have **'regularity of climate' unifying the towns diversity; and in other ways we have 'diversity of climate' resulting in towns unity.** The implied logical matrix can be transcended, and the above can be appreciated... synergistically dissolved into "experiential qualitative IDENTITY" of place and climate.

large exposed areas can't be effectively modified, at least the proximity of smaller sunpocket situations can always be nearby as a refuge from extreme hot and cold days. Note: This however is not to advocate a "monoclimate" response-- because other orientations are vital. But the sunpocket archtype is recommended to occur frequently, to simultaneously modify against both winter & summer extremes-- and there would be a range of results anyway. In addition, some other climatic orientations should secondarily deliberately occur because of their own experiential values: For example, space open northward, perhaps shaded on it's south backside, offers the summer comfort (but winter discomforts) of north exposure, and year-round beauty of viewing "with" the direction of light's departure. East and west orientations favor morning vs afternoon sun or shade-- each being desirable at different times and also viewing with or against shadows. (Even though many existing streets, walks and land have constraints and unresolvable climatic problems, there is always favorable treatment to be had for some improved comfort). * The total result can be a "climate-gradient" of spaces that distributed throughout downtown, from totally open weather exposed exterior space to fully controlled interior space. (See downtown specific area descriptions). Designers should appreciate the importance, (sometimes ease, othertimes great difficulty) in creating 'truly' operative microclimatic controll. The creative, effective use of sunpocket motifs that go beyond the "lip service design" that fails in other towns,is a prime challenge for proposals. (See Olgay for technology that works).

FOR EXTENDED DOWNTOWN ACTIVITIES: The improvement of microclimate through the year means the feasabilty and general encouragement of more types and duration-time of activites-- business/municipal/residential/and all kinds of leisure and recreation. Moreover, particular activites can be targeted, and encouraged further through modifying and accentuating microclimate conditions specifically suitable to them, where they are to occur-- thus contributing maximally to residents or visiting individuals, and the social and economic health of town. One should imagine the microclimate experienced in outdoor/indoor sequence both spatially and programatically-- driving, parking, walking; the relation between interior buildings (eg a restaurant's new outdoor space; municipal area's'a resting or display court, etc). See the activity program of this study for listings, and know that they are each premised by their particular climate dependency. (Eg walking, sitting, fairs, eating, playing, sport, touring, hiking, selling, art, skating; business, etc).

CLIMATIC ECONOMICS: Although the extention of comfort and activities are intrinsically valueable in themselves, plus logically imply added patronage to town business by residents and visitors-- the actual measuring of economic's relation to climate entails important elusive factors beyond the scope of this study that will ultimately need confirmation. For example, the impact of a cool river spot or trellas area for summer, or a single effective bus-shelter, complete awning protection or structural greenhouse, etc all may have profound implications worth study (analogous to thgoughtfulness of Minnessota's winter sky walks, Quebec's atrium's).

FOR CLIMATE-FUNCTIONALITY: proper design must accomodate drainage, snow removal/storage for outdoor areas, and meet legal construction requirements for durablity and efficiency of structures (eg footings, heat-retention, precipitation & sun protection)-- to be determined in working drawing phase, and is not to be within the scope of proposals).

(((Additional notes-- Regarding SUN: Both of Main Street's sidewalks are in shade at the very beginning and finish of the day. In the south end where commercial structures are dense, the east walk gets longer morning shade and later afternoon sun; the west walk gets the first morning sun and declines the late afternoon sun. Both sidewalks have full sunshine the other times-- more so throughout the 'high angled' summer period vs the 'low angled' winter period. This sun is often welcoming for pedestrians walking about town or sitting by stores, bustops, courthouse, or library (while it also invigorates the interiors of buildings) much of the summer, especially to heat up the morning or to feel the sunset. This sun is particularly valued during cooler fall spring hours, and often helps people through winter. But when in summer it becomes excessive outside and inside (especially where there are no awnings) people seek the shadey opposite sidewalk-- which at miday is non-existant and other times out of their way. Most intense summer sun exposure (* see downtown map) occurs at the both ends Main Street (especially the east side commercial facades), and the west side of mid Main Street where it itersects Academy Street. Along with fumes, heat & glare, Main Street more than elsewhere can be so summer-grueling as to cause headaches and eyesore. Fortunately the other mid-Main Street areas do have some shade trees and lack the mirroring facades. On another note: all along Main Street, a diverse configuration of shadows are cast from buildings and the few exiting trees, and lengthen into the winter to cover either of the sidewalks and reach across Main Street. This creates a pleasing seasonal and daily 'sundial-line' that lends a rich spatial depth and animated quality to the street, providing coolness and reducing glare-- improving the driving and walking in summer, but extending cold in winter. (The buildings delay and accentuate the sunrise that 'waits' to clear rooftops; and they accelerate the sunset which descends intriguingly "behind rooftops, beyond the river, revealing only a redish glow".

Regarding WIND: Main Street should be understood by designers as "anlagous to the river corridor" for sweet cooling breezes in summer, warm autumnal winds, fresh spring gusts-- but unfortunately even more untamed winter wind than the river. The north/south orientation of Main Street corridor makes it a longitudinal wind funnel that at both ends scoops winds, especially the pleasant s.w. summer breeze and unpleasant cold n.w. winterwinds, channeling them through town with positive summer and negative winter comfort-effects. (Strong wind can occur in all places, except where sheltered by the westside facades at the south end, adding comfort in winter and possible discomfort in summer). It also crossfeeds from ChopperEaton/Railroad St and River Areas, or instead from the Residential Hill-- to complicate the longitudinal flow with lateral variations-- creating vacum spots, or acceletrtions filtering through spaces (eg Chopper/Eaton/Theater and Elm Streets), alley blasts, areas of back up; eddying and downthrusts especially occur at the east commercial facades, squeezed and accelerated between buildings.

WIND vs SUN TRADEOFF: In the south end where commercial buildings are continuous, there is often conflict between desirable wind vs desirable sun: In winter the west walk buffers wind but may be out of sun in afternoon when desired. In summer the west walk may be desireably shaded in late afternoon but lacking desired breeze (the east walk has breeze but may be in hot sun). This aspect further solicits a climatically sensitive design response))).