

West Lebanon Innovation Plan:

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West Lebanon is a vibrant, thriving community and the economic hub of the Upper Valley, yet also recognized as traffic-clogged, box store-riddled eyesore. We would like to correct the negative aspects of the region while maintaining the commercial strength that is the lifeblood of the area. We propose a plan that will solve the traffic problem, make West Lebanon more aesthetically pleasing and pedestrian friendly, and provide increased potential for future economic growth.

Key points:

- Split 12A into one-way North and South Routes. This will expedite the flow of through traffic and alleviate congestion caused by traffic turning left to enter I-89. Commercial concentration will fall mainly between the North and South routes.
- Create a grid system of roads to facilitate efficient pedestrian and vehicular access to commercial zones.
- Encourage positive pedestrian atmosphere with broad sidewalks, tree-lined streets, increased green space, and humanizing elements like benches, bike racks, and monuments. A local bus system reduces private vehicular traffic (see Transit Highlight).
- Craft a town center with green space and public buildings to provide a sense of community identity. This organization around a green provides a connection with nearby towns and reflects a classic New England system, exemplified in other Upper Valley communities such as Lebanon and Hanover.
- Create shared parking on streets, lots, and structures to reduce pavement footprint.
- Heighten commercial density to allow for future growth while limiting sprawl. This philosophy echoes the planning concepts espoused in the *2000 Williston Comprehensive Plan* for the Taft Corners commercial region. Utilize multi-level mixed-use spaces and parking structures to this end.

- Build with respect to the local architectural vernacular, combining the traditional elements of a New England town with key aspects of a modern commercial center to better meet the economic, aesthetic, and social needs of the region.
- Make storm water collection and treatment a public utility instead of forcing on-site treatment. Focus on removing particulate matter from the first inch of storm runoff. Johnson, Vermont has instituted a public water treatment facility to great effect.
- Heighten the connection of the town with the river, enlarge the Riparian zone, allow for line-of-sight throughout town with the river, and make a trail along the river's edge. This connection with the Connecticut River would be much like that of Burlington with Lake Champlain.
- Set a regional precedent for sustainable design, exploiting the benefits of solar gain, day lighting, sod roof construction, and local materials and vegetation. We understand that green architecture is often not considered in new construction because of the relatively high initial costs (though these are often offset by long-term cost-saving efficiency), but we hope that by following the design principles set forth by groups such as LEED, (Leadership in Energy and Environmental Design), we might build a community that is both environmentally friendly and economically viable.
- Add 250-550 housing units to the region, double the retail space, and build an infrastructure of roads to meet growing transit needs.
- To achieve our goals, the current zoning ordinances for West Lebanon would have to undergo some serious manipulation and be reformed in a more fluid framework. We need to create zoning that will direct all construction toward our primary goals of better traffic flow, friendly pedestrian atmosphere, and attractive buildings and spaces. Specifically, the zoning ordinance must allow for heightened density and mixed use including housing, commercial, office, and restaurant space. Burlington zoning districts work in this fashion (see index). We also borrowed from mixed-use principles found in Hanover and Woodstock. Lebanon itself has a "central business" zone that is very similar to what we

desire, however, it does not allow for a single structure to be used for different purposes (ex: shops on first floor, offices on the second, and apartments on the third). What we need is CBD-MU (Central Business – Mixed Use) that would read as follows: “In-town retail and service establishments, such as stores, restaurants, banks, offices, governmental activities, and high density housing and related uses interspersed both by lot and within single structures. Shared parking on street, lots, and structures.”

Traffic

Traffic has been a main concern for the area. The left hand turns are the primary cause of the problem. To mitigate traffic flow traffic lights are installed. But these cause not a flow but a stop and go crawl. What needs to be implemented is a much more fluid design where traffic lights are not so necessary. By splitting 12-A North and South it eliminates the need for left hand turns. With the addition of the one way streets in the grid format, it makes the movement of traffic through the area more fluidic. Without the left hand turns, traffic flowing up and down 12-A can move much more efficiently especially at the 12-A and I-89 interchange. Our plan creates essentially a larger rotary. With the larger size it allows more room for entering and exiting cars or trucks.

Phase 1 – 5 years

The first phase lays the road infrastructure for the future construction. New roads are routed to minimize the number of buildings that will be demolished during the first phase. The most significant benefit of phase 1 is the division of route 12A Northbound and Southbound. Route 12A North will be routed to Interchange Way to the East of the existing area while 12A South will remain on its existing course. Access to I-89 will be limited to right turns only. 12A South will continue to provide access to I-89 West and service exiting Eastbound traffic while 12A North will provide access to I-89 East and service exiting Westbound traffic. Cross streets will be laid to provide multiple points of access to 12A North from 12A South and visa versa, as well as to provide access to commercial sites located between the two. A center street will run parallel to 12A to further provide interior access and to alleviate shopping traffic from route 12A. I-89 will be raised on a steel superstructure to accommodate the new traffic patterns. This will also provide a visual link between the areas of West Lebanon to North and South of I-89 by removing the earth barrier that supports the current incarnation of the freeway. The tunnel that is currently proposed to connect the JC Penney parking lot and Kmart Plaza will be built during this phase.

The first phase also sees the construction of commercial real estate along Airport Drive to better serve motorists' immediate needs. An additional heavy commercial site will be constructed to accommodate Walgreen's, which is currently planning to construct a new building on the Colonial plaza lot. That site will be razed in this phase as well. A building at the eastern end of the future green will see construction during this phase. This building will serve municipal, commercial, and office needs, as well as provide a visual icon for the area with its prominent one hundred foot clock tower. At the South end of the affected area, the first mixed use building will be constructed to accommodate commercial, office, and possibly housing needs.

| Phase 1 | | | | | | |
|--------------|---------------------------|---------------------------|--------------------|------------------|----------------------|----------------------------|
| | light commercial (sqr ft) | heavy commercial (sqr ft) | mixed use (sqr ft) | housing (sqr ft) | parking lot (sqr ft) | parallel parking (# spots) |
| demolition | 188,000 | 0 | 0 | 0 | | 0 |
| construction | 193,000 | 40,800 | 62,000 | 0 | 126,000 | 323 |

Figure 1: phase 1

Phase 2 – 10 years

The second phase focuses on infilling the newly developed infrastructure established in the first phase. A central green will be planted on the Eastern side of 12A South. Three-story, mixed-use buildings will be erected around the perimeter of this green to begin to provide a point of focus for the growing community. This phase also begins construction of mixed-use and housing to the West of 12A South. Part of this Westward development is a large tree-lined corridor that provides a direct line of sight between the river and the clock tower. Smaller versions of this corridor are emulated at the end of each East-West cross street to provide a visual link with the river and also to give the area a larger sense of space and connection with the river.

The area under the new I-89 overpass will be planted with greenery to provide a rest area near the freeway exits. Additional dining and services will be built adjacent to this green space North of Airport Drive

A heavy commercial site will be constructed adjacent to the Wal-Mart and Price Chopper buildings at the South end of the area.

| Phase 2 | | | | | | |
|--------------|---------------------------|---------------------------|--------------------|------------------|----------------------|----------------------------|
| | light commercial (sqr ft) | heavy commercial (sqr ft) | mixed use (sqr ft) | housing (sqr ft) | parking lot (sqr ft) | parallel parking (# spots) |
| demolition | 72,480 | 84,100 | 0 | 0 | | 0 |
| construction | 66,000 | 65,000 | 851,000 | 136,000 | 365000 | 44 |

Figure 2: Phase 2

Phase 3 – 25 years

The last phase finishes infilling the infrastructure laid out in the first phase and further develops the area to the West of route 12A South with more mixed-use, housing, and two additional heavy commercial sites. Two-story mixed-use buildings will be erected behind those that face the green and further solidify the commercial core of the development. During this phase, four two-story parking structures are completed to accommodate the parking needs of the new mixed-use buildings. This phase also marks the completion of the riverside park reclamation. The park includes running and walking trails and acts as a natural buffer between the river and human development. Large corridors between sections of trees allow viewing of the river from any East-West cross street. A perimeter road runs between the park and the housing units to provide access and an alternate loop road that connects with the area North of I-89 via the tunnel that was completed during phase 1. To further complement the road infrastructure, a new exit from I-89 east will be built, crossing the Mascoma River by the sand pits northeast of the center of West Lebanon.

| Phase 3 | | | | | | |
|--------------|---------------------------|---------------------------|--------------------|------------------|----------------------|----------------------------|
| | light commercial (sqr ft) | heavy commercial (sqr ft) | mixed use (sqr ft) | housing (sqr ft) | parking lot (sqr ft) | parallel parking (# spots) |
| demolition | 457,000 | 0 | 0 | 0 | | 0 |
| construction | 0 | 181,600 | 9,373,000 | 148,000 | 516200 | 184 |

Figure 3: Phase 3

Statistics

Our plan has the potential to greatly increase the commercial capacity of the area South of the I-89/rt 12A interchange. The following table shows the potential increases in general mixed use, housing, heavy and light commercial real estate.

| | existing (sqr ft) | after – low* (sqr ft) | % change | after – high* (sqr ft) | % change |
|-------------------|----------------------|--------------------------|-------------|---------------------------|-------------|
| general mixed use | 0 | 1,905,900 | | 2,104,200 | |
| Housing | 0 | 271,200 | | 469,500 | |
| heavy commercial | 314,000 | 443,500 | 141 | 443,500 | 141 |
| light commercial | 677,000 | 176,200 | 26 | 176,200 | 26 |

*Note: High value is calculated by using 3rd floor of the buildings surrounding the green as apartments or condos. Low is calculated using only buildings zoned "housing."

Figure 4: Existing and planned use of space

Parking

In order to accommodate the overall increase in density of the area, we increase the number of parking spots from roughly 3800 spaces to roughly 5800. The following table demonstrates the allocation of parking spaces

| parking | total area (sq ft) | linear feet | % parking | area per space | # spaces | method |
|-----------|------------------------|-------------|-----------------|-------------------|-------------|---------------------------------|
| on street | - | 13,782 | see formula* | | 551 | parallel |
| lot | 1,075,000 | - | 100.00% | 310 | 3468 | 90 deg |
| structure | 111,000 | - | 170.00% | 302 | 625 | 2 story, flat floors, ramped |
| apartment | 284,000 | - | 100.00% | 302 | 940 | 3 stall/column 70 deg |
| park | 51,500 | - | 100.00% | 300 | 172 | 90 deg |
| | 1,521,500 | 137820 | | total # spaces | 5756 | |
| | total paved parking | 1,659,320 | | | | |

Figure 5: Parking area breakdown for proposed plan

On street parallel parking was determined under the assumptions that no cars may park within 25 feet of an intersection and that each space is 25 feet long. See the following page for a survey of on street parallel parking in the proposed plan.

This increase in parking, although substantial, is not directly proportional to the increase in commercial real estate because the existing ratio of commercial floor space to parking spaces is based on separate lots for each building. Our plan employs extensive use of shared parking, which can greatly reduce the number of parking spaces through careful planning. By researching the peak use hours of businesses and matching those whose peak use hours do not overlap, by matching businesses that share customers, and by mixing the fluctuating parking demand of commercial real estate with the relatively fixed parking demand of housing and offices, parking expenses can be limited and a sense of community can begin to be fostered by businesses and patrons alike.

Housing

Our plan places approximately 270,000 square feet of potential housing bordering the river front park area. Due to their proximity to the river and its flood plane, these buildings will be slightly raised with parking beneath them. These units alone can accommodate between 300 and 400 apartments and condos. Additional apartments can occupy the third floor of the buildings surrounding the town green. This space adds an additional 200,000 square feet of potential housing space, or enough for an additional 250 units. This constant population in the immediate vicinity of the new commercial center will help support a broader offering of restaurants and small shops than if housing were not immediately present. This population also helps to create activity in the area after stores close, which greatly increases the overall vitality of the region.

| | parking spaces | ratios | % of total | Square footage |
|------------|----------------|--------|------------|----------------|
| efficiency | 1 | 2 | 6.78% | 400 |
| 1 bed | 1 | 4 | 13.56% | 600 |
| 2 bed | 1 | 20 | 67.80% | 800 |
| 3 bed | 2 | 3 | 10.17% | 1100 |
| penthouse | 2 | 0.5 | 1.69% | 1500 |
| total | | 29.5 | | |

Figure 6: Housing breakdown as provided by Jonathan Chaffee

Building Costs Analysis

Our projected building costs are \$238.5 million dollars. This projection is based on building costs from the 2005 National Construction Costs Manual (NCCM). We assumed that all buildings would be built from masonry and concrete rather than wood frame. We also assumed that construction of housing would be of “good” quality as defined by the NCCM.

These costs do not include the cost of the building new roads, landscaping, or special circumstances. They are meant to be a general ballpark of costs of improvement for the area.

RESIDENTIAL

| | # Units | Total Area | Total Cost |
|----------------|---------|------------|-------------------------|
| Single-Family | 0 | 0 | \$ - |
| Multi-Family | 550 | 447,200 | \$ 31,327,508.00 |
| Total | 550 | 447,200 | \$ 31,327,508.00 |
| Adjusted Total | - | - | \$ 39,848,372.00 |

COMMERCIAL

| | Total Area (ft^2) | Total Build Cost |
|-----------------------|-------------------|--------------------------|
| Stores | 1,383,000 | \$ 112,397,867.00 |
| Supermarkets | 90,000 | \$ 6,664,500.00 |
| Banks & Savings | 9,000 | \$ 1,919,610.00 |
| Dept. Stores | 0 | \$ - |
| Gen. Office Space. | 385,000 | \$ 35,533,650.00 |
| Restaurants | 74,600 | \$ 9,662,796.00 |
| Theaters | 0 | \$ - |
| Warehouses | 287,000 | \$ 11,508,700.00 |
| TOTAL | 2,228,600 | \$ 177,687,123.00 |
| Extra Building Costs | | \$ 27,083,398.00 |
| Total Commercial Cost | | \$ 198,627,405 |

TOTAL CONSTRUCTION COST: \$ 238,475,777.37

Figure 1: Table of building construction costs analysis

Pathway to Solution

For this plan to work the zoning ordinance will have to be modified. The ordinance will need to provide incentives for businesses and developers that would make these changes more appealing. One idea is to increase the land tax while lowering the building tax. This would facilitate businesses and developments to use a smaller foot print. This is similar to what was done in Pittsburgh, PA to facilitate building height increases. Restructuring the parking standards for buildings and businesses. Most of these lots rarely see full capacity let alone all at once. Currently each business is taking care of its own parking. If the zoning could take into account public or shared spaces for buildings, then that would reduce the overall footprint and allow for a denser build up. Another incentive would be to streamline the review process. If developers have too many obstacles to get there project built it would discourage development. For more ideas see the Formula for successful Infill Development under Background Research.

Conclusion

West Lebanon has currently reached a saturation point. With no more available lots, West Lebanon must now focus on infilling the existing land. In order to continue to prosper, the city must begin to rethink its course for development. We hope that this plan will help direct West Lebanon towards continued sustainable expansion and bring a new vitality to the current commercial wasteland.