
ANNUAL ENGINEERING REPORT FOR 2019



THE CITY OF WESTFIELD HAMPDEN COUNTY, MASSACHUSETTS

Submitted to:
The Honorable Donald F. Humason JR, Mayor and the Westfield City Council

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MUNICIPAL MISSION STATEMENT

To coordinate and deliver services that protects the interests and quality of life in our community with professionalism, integrity and efficiency.

DEPARTMENTAL MISSION

The Engineering Department's mission is to assist the Mayor and City Council in obtaining the municipal mission through the application of professional knowledge on the infrastructure systems, which serve our community. This task has been focused by section 2-454 of the Code of Ordinances, which lays out the duties and responsibilities of the City Engineer. Included is the preparation and administration of contract documents related to infrastructure improvements and the preparation and maintenance of the Assessor's maps. Since the Mayor and City Council serve the citizens and are served by multiple other departments the office extends its assistance to those parties as is appropriate and practicable.

This mission puts the department in a unique position to assist the coordination aspect of the municipal mission, a difficult and demanding enterprise requiring participation by others with demonstrated successes.

That unique position avails the City of opportunities for expansion of services toward an enhanced position in contending with a global economy. Potential enhancements of interdepartmental coordination exist through permit tracking, coordinated maintenance programs including greater data gathering and sharing, serving the efforts of health, community development & planning, voter registration, building, off-street parking, public safety, education and environmental protection.

The following report will demonstrate the departments' achievement in the traditional roles as well as roles under consideration for expansion. It is the intent of the Engineering Department to provide the requisite services to all authorities of the City and thereby to the ultimate authority, its citizens.

Beyond this codified responsibility the department traditionally provides reviews and inspections for the Planning Board, reviews for the Conservation Commission and Contract Document preparation and administration for the Flood Commission. Also, the department assigned house numbers and determined zoning boundaries for the Building Department as well as assisted with storm water management and urban forestry development. Maintenance of the City Assessor's Maps is done by this department through the Geographic Information System also.

GOALS – SHORT TERM *TRADITIONAL SERVICES* FUNDING

The most constraining aspect of this office's efforts to effect infrastructure improvement is Funding. Creatively and cooperatively municipal utilities have participated in these efforts affording a comprehensive holistic approach with measurable results for the Board of Public Works, the Board of Water Commissioners, Park and Recreation Commission and Flood Commission. Those improvements affect our competitiveness in attracting new industrial, commercial and residential developments which is deservedly noted in the City's placement as #1 **City on the Rise** in 2014 through three categories. First: growth in working age population by 1.3%, second: growth in employment by 8.9% and thirdly: growth in median income of 23.3% (please review this on line at <http://www.nerdwallet.com/blog/cities/economics/cities-on-the-rise-massachusetts/>). For several years this report has stressed the importance of adequate funding in infrastructure investment which, effects the quality of life in our community, the effectiveness of moving goods and services and the image the city conveys to the public and the world with direct impacts to the comfort and confidence our residents and businesses have in their surroundings and their leaders.

Over the past few years a great deal has been expressed about infrastructure needs, particularly pavement conditions. For around 20 years this report has asserted the need for enhanced resources toward infrastructure improvements. One City Councilor, upon election to Mayor, acted on this issue by putting in place resources resulting in the completion of the Great River Bridge Project, realization of the Main St/Broad St/Park Square Project, Elm St Improvement Project, Gas Light Project, and initiation of the North Elm St Center Turning Lane Project and more. Each of these efforts greatly enhanced infrastructure and pavement conditions. With that underway that Mayor chose to commit one year's allocation of Chapter 90 funding to the Columbia Greenway to maximize the value of the grant funding received. That year was the year current Governor Baker fulfilled a campaign pledge to enhance Chapter 90 funding by 50%, regrettably that enhancement was only for one year and not the annual enhancement anticipated and needed.

Much has also been discussed about Cowles Bridge and the double decades of delays in its rehabilitation with criticism of the municipal effort to advance it. Cowles Bridge is not owned by the City, as such it is not a city priority like Horton's Bridge (Granville Rd over Little River) or Northwest Road bridge. Both were closed for 5 years before being rebuilt in the period in question. Rebuilt in this period was Great River Bridge, a state owned bridge, with such significant traffic congestion and extensive impacts of abutting facilities and roadways that City participation was necessary and a priority. Air and Army National Guard Bridges were likewise replaced, state owned and pushed by the City due to the severity of deterioration and potential disastrous impacts if closed. The City's effort also led to them being 5 lanes rather than 4 as was previously the case. Also Pochassic Street bridge, state owned, was closed and replaced in this period relieving significant emergency response delays. The City has been busy and successful over the past 20 years in pushing for replacement of its aged bridges.

The city has for the past few decades received authorization of \$1.2M in annual Chapter 90 funding, the insufficiency of which has been demonstrated repeatedly on both state and local levels. The City's reliance solely on Chapter 90 funding for annual funding to address pavement conditions must change and be augmented. For some time the City, through this office has sought to augment the Chptr 90 funding with bonding and utility funds in comprehensive infrastructure improvements. Several "Old Town" efforts have been successfully achieved with improvements to water, sewer, ADA access, lighting and pavement condition. Despite this, funding for pavement management and infrastructure improvements remains inadequate. Local funding towards direct infrastructure investment through this office of \$1,085,000 was appropriated this fiscal year with direct benefits. Regrettable in light of the unsuccessful storm water fee increase and continued stagnation of state aid a stronger annual local investment of \$2,000,000 in Engineering and \$500,000 in DPW construction accounts is recommended. Coupled with recommended \$1,000,000 from the storm water utility and continued pursuit of increased Chapter 90 allocation should eventually bring the identified \$4M resources within obtainment. Reassessment of the City's participation in the Complete Streets Program which could provide an additional \$400,000 in funding and more aggressive pursuit of the MassDOT Small Bridge funding program is recommended to address needs. The aforesaid "cocktail" approach anticipates continued participation by utilities, sewers in particular, to effect comprehensive improvement.

The business of rehabilitating a city to suit current demands of living, working and playing is not cheap nor without risk but, it is the business we are in. The future of Westfield to attract and keep business and residents, particularly in the urban areas, is dependent upon our success. Continued and increased funding is essential to address this daunting task of infrastructure management.

GOALS – SHORT TERM

TRADITIONAL SERVICES

MASTER PLANNING

In a broad outlook the world we knew is changing. The global economy trending toward closer equalization of living standards leading global demand for energy and resources coupled with global climate change imposes the need for reassessment of the "American Dream". Today's catch phrase is Green i.e. low carbon foot print, renewable energy or materials, high efficiency machinery. In a phrase "do more with less". Civilization, especially in the USA is rediscovering the value of urban living, working and playing. Populations have shifted to the point where today over 50% of the world population currently lives in cities, 70% of US population lives in metropolitan areas. As traffic congestion escalates due to the lack of national investment in infrastructure and inevitably energy prices rise the cost to live, work and play in the urban centers becomes more economical. Population shift to urban centers nationally and globally challenges these centers to provide systems for day to day services. Successful communities will present these in a way that will mitigate the adverse impacts of higher density, noise and congestion by offsetting this cost with desirable elements of living. The American dream is challenged and changing but, not dead. Its realization is possible in the urban centers. In Westfield with the success to date in infrastructure improvements live, work and play in the urban center can be economical, convenient and desirable.

The City is in a new era. Success in improving Westfield's infrastructure positions the city to fill the role of that new urban center. Opening of the second Great River Bridge reduced delays of 30,000 vehicles per day by 75%. Back-ups north bound, which once stretched from Interchange 3 to Park Square along Elm and North Elm Streets and visa versa in the south bound direction are now history. Streetscape and Park enhancements provide activity, interest and enhance the experience of travelers and users. Iconic imagery is recognized by locals and the region inspiring efforts to strive for success. The success of Park Square Green, the historic heart of the community now possesses the ability to lead in the trip generation to the

downtown through programming of events leading the way toward revitalization. Efforts with the Gas Light District Improvements, Columbia Greenway, Westfield River Levee Multi-Use Trail, center turning lane initiatives on Franklin, Court, West Silver and North Elm with ongoing Old Town rehabilitation will continue the momentum, moving Westfield to a desirable and “Green” community .

Since the beginning of the new millennium this office has attempted to affect an overall **Infrastructure Master Plan** wherein improvement to pavement, traffic congestion, sanitary sewers, water system, storm water drainage and sidewalks are programmed for coordination of funding and construction sequencing. The aim is to derive the most benefit from limited resources and to facilitate a policy of comprehensive improvement addressing all outstanding issues. Pavement condition has been the trigger for this work as that system is the most funding challenged. The projects identified previously conform to this approach, moving forward, adequate long term funding remains a barrier to establishing multi departmental coordination toward a multi-year Master Plan.

The **Congestion Management Program** deals primarily with roadways eligible for state & federal funding, which are so designated by the Federal Highway Administration. These roads experience higher traffic volumes and constitute the majority of the arterial and collector roadways in the City. This category is further divided into state or local priority. Bridges are generally a state priority and require no local funding. All others require a 10% funding match typically in the form of design, permitting and right-of-way acquisition costs. Construction of the Route 20 bridges over Westfield River and Powder Mill Brook and the twin Great River Bridges and introduction of central turning lanes on North Elm Street has had a dramatic impact on relief of congestion in the city as Western Avenue will likewise. A considerable number of these roadways have been addressed over the past couple of decades as the City, through this office, has been very successful in acquiring state and federal funding

In consideration of the discussed funding shortfalls the City's **Pavement Management Program** separated the pavement inventory into categories of local funding responsibility. Local roadways take two forms. Accepted "Public" Streets and Unaccepted "Private" Streets (see section Areas of Concern - *Roadway*). Private Streets were excluded from the funding need's evaluation since they are not legally municipal responsibility. Any desired improvement to private streets requires funding in excess of that identified or application under another funding program. Currently active projects included in the Pavement and Traffic Congestion Management Program follows (Dates are based upon Federal Fiscal Year):

<i>State Funded - State Priority</i>	<i>Design</i>	<i>Construction</i>
Cowles Bridge-South Maple Rd/Little River 400103	100%	2020
Route 10 & 202 Resurfacing 608487	50%	2021
<i>State Funded - Local Priority</i>	<i>Design</i>	<i>Construction</i>
Columbia Greenway Bike Trail – Central, Part 3 603783	100%-VHB	In Process
Route 187 Improvements – Sherman’s Mill Bridge 604445	75%- Benesch	Canceled
Western Ave. Reconstruction – Central Section 603449	100%-Milone MacBroom	In Process
Western Ave. Reconstruction – Eastern Section 607773	75%-Milone MacBroom	2021
Route 20, Springfield Road, Traffic Signal	100%-Fuss&ONeil	Substantially Complete
Westfield River Levee Multi-use Trail 608073	25%-Tighe&Bond	To Be Determined
Interchange 3 Slip Ramp/Congestion Mitigation	Under analysis	To Be Determined
<i>Locally Funded</i>	<i>Design</i>	<i>Construction</i>
Lozierville Old Town Roadway Improvements	100%-Tighe&Bond	To Be Determined

Lozierville, Meadows Old Town Roadway Improvements	90%-Tighe&Bond	To Be Determined
Union Street @ Springdale Rd Traffic Signal	100%-MacMahon	In Process

The **Sanitary Sewer Program** was arrived at in conjunction with the Environmental Impact Report for the expansion of the Water Pollution Control Facility. The Massachusetts Department of Environmental Protection (DEP) required identification of those areas to receive sanitary sewer extensions for which treatment capacity was being designed. A similar undertaking, known as the Facilities Plan, had been conducted when the treatment facility was first constructed in 1973. Questionnaires were mailed out to all residents inquiring into septic system problems. An extension program, also known as the Strategic Plan was developed and submitted to City Council for adoption in June of 2004. The Council has requested digital modeling of the system, which has been completed by the consultant CDM. QA/QC is ongoing.

The City has been proactive in its effort to extend sanitary sewers considering that any residence with a legal Certificate of Occupancy should never need them, however, the city is attempting to accommodate older neighborhoods where difficulties and large expenses in meeting current septic system design standards are anticipated. This effort has been formalized through adoption of a Strategic Plan accepted by the City Council and implemented over time. This plan was arrived at based upon input from the departments of Health, Public Works and Engineering incorporating public health, pavement management, storm water management and strategic constructability issues. A funding level was established at \$750,000 annually and adjusted in 2008 to \$825,000. A rate increase recently approved allows accelerated construction schedule through borrowing. Active projects in the identified calendar year as follows:

<i>Project</i>	<i>Design</i>	<i>Construction</i>
Infiltration and Inflow Remediation	90%-CDM	Pending
Plantation Circle	100%-CDM	Complete
Pineridge Drive	100% RLA	Substantially Complete
Western Avenue-Central Sanitary Sewer Improvement	100%-Milone MacBroom	Substantially Complete
Western Avenue-West Sanitary Sewer Improvement	5%-Tighe & Bond	Hold

The **Storm Water Management Program**, has changed significantly with the recent receipt of Federal requirements through its National Pollution Discharge Elimination System (NPDES) General Permit, first obtained in September of 2003. The NPDES permit requires substantial man-hours to address the requirements as well as funding. In response the City Council passed a local ordinance establishing a Storm Water Utility providing personnel and capital to meet the requirements.

The storm water utility is only generating approximately \$60,000 annually in capital for infrastructure improvements. Accept it or not but, storm events are occurring more frequently and intensely. Add in the backlog of storm water repair and improvements outstanding and the fee represents a drop in the bucket. Construction projects currently underway are as follows:

<i>Project</i>	<i>Design</i>	<i>Construction</i>
Western Avenue-Central Utility Improvement	100%-Milone MacBroom	In Process
Holyoke Road Drainage Adjustment	10%-Eng. Dept.	2021
Arm Brook Dam Rehabilitation	50%-PARE	2020
Powder Mill Brook Dam Rehabilitation	20%-Aterra Solutions	2022

The **Streetscape Improvement Program**, including sidewalk reconstruction is perhaps the least appreciated as to funding priority yet one with the greatest public appreciation as demonstrated through massive public involvement in the 2010 Park Square Green Enhancement bonding effort. Streetscape improvements have invigorated neighborhoods, motivating many private property owners to undertake

improvements and invest in their surroundings/neighborhood, demonstrated recently through accelerated development activities/interest in the downtown. The overall effort is larger than sidewalks alone and includes traffic management/calming and streetscape issues such as urban forestry and street lighting to enhance the user experience and help define neighborhoods. To be vibrant and sustaining the city must instill in its residents/customers a sense of pride and confidence, inspiring that population about the current and future potential for them. Likewise these neighborhoods must realize the particular attributes they possess, enhancing those attributes to obtain a self-image. Attainment of individual neighborhood identity is considered the key to galvanizing community spirit, renewing interest and investment in older neighborhoods, improving housing stock and reducing the demand for urban sprawl.

In December of 2000 the Westfield Vision Planning Committee produced a report which identified several perceived deficiencies by the public. One in particular was the lack of identity of the community. Although the community had numerous attractive and desirable individual elements, it lacked cohesion and coordination. The most important method of achieving this is through infrastructure improvements such as roadway and sidewalk design i.e. streetscape design. Over the course of the year 2009 the City conducted multiple outreach sessions toward an Urban Center Vision Plan with principal components of Live, Work, Play and Connect, key to an active and vibrant center. Enhancement of the experience of living in the center, working in the center, playing in the center and connecting the same is the goal of several projects identified herein. It has become apparent that the aesthetic experience is as important as the functional when it comes to the community's perception of the particular infrastructure improvement and of the city over all. Consider any desirable neighborhood. The houses are not the cheapest, landscaping and architecture are attractive. A good looking and riding pavement condition is not enough. Attractive curbing and tree belt features carry equal weight with the public's perception of the roadway. The results have been overwhelmingly positive.

We live in an old city, 350 years old. As with an old house, if it is not kept up and improved to meet evolving demands of living standards it will be doomed to substandard uses or abandonment. We invest the majority of our limited tax revenues in educating our youth, if the City is not kept up and improved that investment will leave town. Failure will also encourage our senior population with their retirement portfolios/funds to similarly leave town. The resolve and resources must continue to be found to address infrastructure management irrespective of the economic times. The Herculean heavy lifting of Mayor Knapik, both Mayor Sullivans and the City Council in wrestling with the necessary funding has been nothing short of miraculous.

GOALS – LONG TERM *DEPARTMENTAL*

The city has repeatedly benefited from the strong productivity of this department and can only dream of better days through that continuation. The department will persevere in its efforts to focus the vision for the City's future.

GOALS – LONG TERM *DEPARTMENTAL* IMPROVEMENT RECOMMENDATION

STAFFING

The department continues to experience staffing turnover. Heather Miller has left Utility Engineer to be appointed System Engineer for the Water Department, Greg Freeman has left Assistant Civil Engineer to join the WG&E, and Matt Gamelli has left Engineering Aid – Administrative Assistant to fill the Utility Engineer position. To the Cities great fortune a seasoned Engineer has joined us, Jeremy Cigal as Assistant

Civil Engineer. Recently John Lobudek has left Engineering Aid-GIS Coordinator and replaced by Michael Bazegian. Regrettably the City's offer of compensation and benefits struggles to attract and hold personnel. Staff turnover is very disruptive and counterproductive. The offer of compensation affording the support of a family and commensurate benefits achieved by seasoned professionals is a large concern. Ongoing projects from previous years coupled with upcoming efforts will challenge the team. In addition, the use of paid interns has been discontinued. Previous practice greatly advanced departmental efforts toward modeling of utilities, digital archiving of documents and data gathering in the field assisting the Water, Storm Water and Urban Forest system management. Most of the recent interns have been volunteer and unsatisfactory, a minimal funding level of \$4,000 is recommended in the future.

MATERIAL

The Department regularly budgets nominal funds for equipment replacement. In so doing the required tools remain current and effective. Continued funding is recommended.

SPACE

Renovations to City Hall have impacted operations in a positive way. Certainly the fresh paint, colors, carpet etc. improve morale internally as well as presenting the public with a professional image set in a historical frame. Chronic problems associated with office heating and cooling have been eliminated. Roof leaks are gone. Handicapped accommodations are addressed. However, heating and cooling of the archive vault are a concern that remains unaddressed.

SUMMARY

It is widely recognized the economy of our region and our nation is shifting to service orientation. Recent demographic information reveals the City of Westfield likewise has shifted from employment in the manufacturing industry to employment in the service industry with a current ratio of 2:1. Government is a service within which this department provides engineering services as well as information and tools with which to use that information. Tourism is one of the top three industries in Massachusetts, an enhanced downtown, by way of congestion relief, in concert with aesthetic enhancements recreational opportunities via the Columbia Greenway allows the city to tap that industry and move in the direction of the Master Urban Vision desirable to a high skilled workforce living, working and playing in and around the center. The success of this department in infrastructure management and information delivery in Geographic Information System via the internet will enhance the City's role as a service provider in a global economy.

Again, the Office of the City Engineer has responsibly applied tax dollars toward the enhancement of the community through the design and supervision of numerous valuable projects. The Engineering Department achievements of 64.6% return on investment is outstanding. The successful efforts of this Office are not possible without the continued trust of and investment by the Mayor and the City Council.

AREAS OF CONCERN

Several issues have been outstanding for some time, to which resolution remains elusive. The issues presented herein for consideration are not intended to criticize but, to present these concerns and provide some suggestion for remedy. In addition much has been achieved related to tools and talent to address the municipal mission however, that mission is not held by all. That buy in starts at the management level. Improvement of the users experience will evaporate if zealous maintenance is not performed.

DRAINAGE

The Department of Public Works has established a cleaning program. More information as to its frequency and approach together with accomplishments, goals and identified problem areas is necessary to implement remedies and exact the maximum benefit from operations. Development of an Asset Management Program by DPW will greatly assist in this concern.

ROADWAY

Unaccepted streets are a chronic problem, the worst of which are unpaved. The legal responsibility for these is continually questioned. Legally, with some exception, the abutters own an unaccepted street, each owning to the center of the road with a prescribed right-of-way (ROW) easement across that portion which constitutes the road right-of-way. Since the abutters own the road they are responsible for maintaining and improving it. This is a significant hardship for most. A homeowner is nearly always unaware of his/her responsibility and likewise unprepared to effect the necessary improvement.

The typical scenario for new road construction in the City is under Planning Board authority, which requires certain standards. Once released from Planning Board control a road should meet these standards and be suitable for acceptance. A petition of the majority of the abutters to the City Council initiates acceptance by the City. Herein lies the problem. Abutters of a new street have no reason to seek assistance and so are not motivated to petition. Abutters of an aged street are motivated and do petition however, problems have arisen thereby making acceptance unattractive to the City.

Government is the only entity with the skills and resources to properly maintain roadways. As such it is the recommendation of this Office that a progressive program of acceptance and improvement be funded and implemented however, some private streets are so deficient of acceptable conditions that abutter participation by way of betterment assessment is recommended.

SANITARY SEWER

As with Drainage, information regarding the systematic approach to inspection and cleaning with achievements, goals and identified problems are desired. It had been noted since 1991 the lack of routine monitoring of sanitary sewer flows and inspection and cleaning of sewer lines. Although, the physical monitoring of actual flow remains outstanding, monitoring of maintenance and repair activities will facilitate the determination of its condition and ability to accept additional flows.

The Engineering Department requires this information to gain the most benefit from this program. Development of an Asset Management Program by DPW will greatly assist in this concern.

SANITARY SEWER – CROSS COUNTRY EASEMENTS

Clearing of sanitary sewer easements is as yet not practiced. It is a well-known fact that tree roots are attracted to sanitary sewers. No pipe material has yet been proven to prevent the roots from entering. As time goes by the sewer lines will become increasingly constricted and the

incidence of blockage more frequent. As the vegetation grows it will be increasingly more difficult to locate sewer Manholes and the associated main. Vehicular access to certain segments is already impossible.

I believe a review of the associated costs of performing regular maintenance vs. effecting emergency clearing and grubbing to establish access will favor the regular maintenance. A program to regularly clear the easements is therefore recommended.