

Engineering

200 Orange Street
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Department Head:
Larry Smith, Asst. City Engineer
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Additional Point Person:
Same

Positions:	GF- 8	CF- 6
General Fund Budget:		\$ 3,113,455
Capital Fund Budget:		\$11,301,907
Special fund Budget:		\$0

Legal Authority: Code of Ordinances

Article XVIII, Section 96 of the City Charter and [Sec. 2-241to 2-245](#) of the Code of Ordinance establish the Department of Engineering. The department of engineering is hereby established as a functional unit of city government, and said department shall be under the charge of the city engineer.

Mission/Overview:

The Engineering Department provides professional engineering services to all Departments, the Mayor's Staff and the public concerning technical and construction management issues associated with design, construction, inspection and operations of the City's infrastructure. Bridges, roads, storm sewers, drainage, parks, buildings and sidewalks often require engineering services. Additional services are provided in reviewing development plans, maintaining mapping and records and providing the public with data concerning infrastructure and as-built information, street lighting, flood control issues and the management of governmental buildings. During the I-95 Corridor construction, the Engineering Department is involved in ensuring the City infrastructure is protected and/or improved. Engineering Staff attends numerous design, progress and construction meetings throughout the year that are focused on mitigating impacts to the City's Rights-of-Ways (ROW).

Attention Required by March 31st:

Finalize Capital Expenditures Items

- Complete Streets Program Local/State/Federal
- Sidewalks Local/State LOCIP/Federal CBDG
- Local Bridges Local/State 33%-50%/Federal 80%
- Street Lights Local/UI
- Facility Rehab Local/general facility upgrades
- Government Center Local/City Hall & Hall of Records repairs
- General Storm Local/Catch Basin & Storm Sewer Repairs
- Flood & Erosion Local/Brewery Park Supplemental/Cove?
- Goffe Street Armory Local/State
- Wintergreen Armory Local/Upgrades for use

Finalize General Fund Items

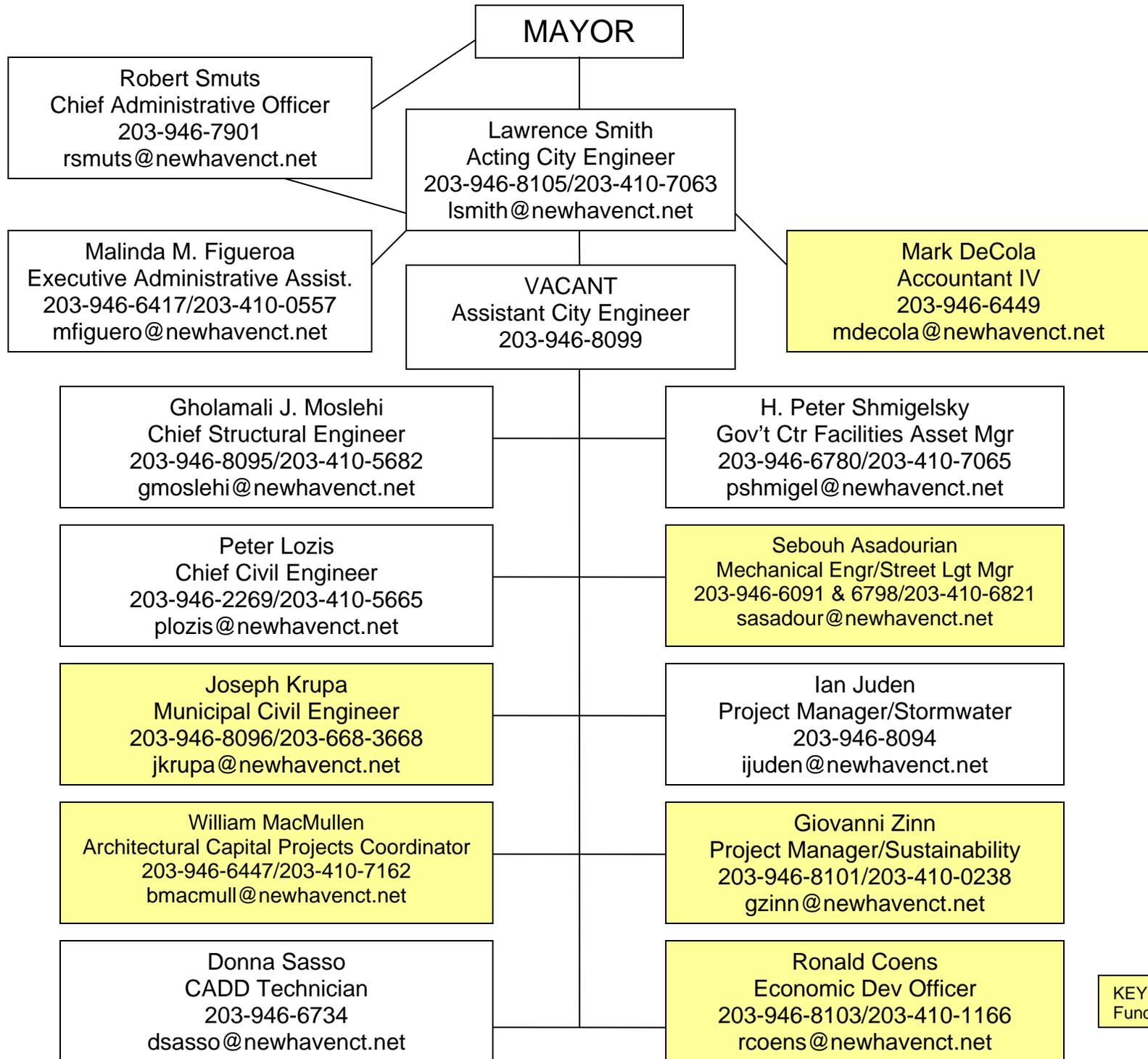
- Salaries Personnel/General Fund
- Utilities Energy costs/Street Lighting maintenance
- Material and Supplies Supplies in support of Engineering Services
- Rental and Services Contractual Agreements/CB Cleaning

Personnel

- Probationary Period ends for Joseph Krupa

Capital Projects

- Design 100% Complete, Bids received, contract awarded and Start Construction on Brookside Bridge
- Finalize Design for George Street Bridge over Church Street Tunnel
- Construction for State Street Bridge over Mill River 50% complete. CT DOT managing project
- Construction of East Rock Bridge over Mill River 75% complete
- Design 50% complete for Crown Street Bridge over Church Street Tunnel
- Design 20% complete for Solomon Crossing Pedestrian Bridge
- Design 45% complete for Wilmot Road Bridge over Wintergreen Brook
- LED Street Light Retrofit Project: Complete 100% of Phase I (3500) and 50% of Phase II (3500)
- DPW Maintenance Garage Temporary Shoring 100 % complete
- Grand Avenue Movable Bridge over Quinnipiac River Phase II design 10% complete(Phase I 100% complete
- Brewery Square Seawall Design 100 % complete also CT DEEP COP issued
- Howard Avenue Pavement Rehabilitation Project 50% Design complete
- Whitney/Audubon Intersection Improvements bids received and award contract to lowest bidder.
- Complete Streets approved speed humps/curb adjustments to be 75% complete
- Approved sidewalk improvements to be 50% complete
- General Storm and Catch Basin Cleaning to be 60 % complete
- Complete design for the Irene/Sandy FEMA sites (Mill River Tide Gates abutments , Morris Creek Tide Gates access Road, and Long Wharf Outlet Tidegates)
- Government Center Repairs. Energy Center Leakage abatement 100 % Complete.
- Ives Library Phase II Construction, bids received/contract awarded/under construction
- Coogan Pavilion design will be completed, bids received, contract awarded, under construction
- Dixwell Youth Services Study/Q-House Feasibility Study 50% complete
- Goffe Street Armory physical improvements to Building to ADA Standards, SHPO grants received, pending additional State OPM funding
- Wintergreen Reserve Center Firing Range Feasibility Study 10% complete



KEY: Special
Funded Position

Budget Summary:

Budget Summaries for FY13-14 General fund

Item	Budget	uses
Salaries	\$687,280	salary covers 8 personnel
Utilities	\$1,850,000	Cover energy costs and maintenance of Street lights
Material and supplies	\$10,120	supplies ins support of engineering services
Rental and services	\$566,055	covers contratural agreements for reoccurring needs such as catch basin cleaning and Honywell agreements
Total	\$3,113,455	

Capital Expenditure plan

Complete Streets	\$550,000	For varrious traffic calming measures and our share of STP projects
State	\$13,000	STP projects
Fed	\$228,000	STP projects design
Sidewalks	\$1,000,000	For general sidewal repairs throughoutthe city
State LoCIP	\$400,000	same
Fed CDBG	\$67,227	sidewalks in CDBG areas of eligibility
Bridges	\$1,300,000	George Street/Brookside/Wilmont
State Local bridge fuds at 33%	\$458,700	Brookside/George Street
Fed 80%	\$1,600,000	Wilmont bridge
Street lights	\$175,000	Knockdowns/ poles /pole shifts
UI	\$660,000	New LED lights
Facility Rehabilitation	\$448,658	General facility upgrades city wide
Government Center	\$380,399	Leakage repairs, roofing and misc needs
General Storm	\$225,000	Catch basin stormline repairs
Flood and Erosion	\$500,000	Brewery park and Cove issues/ Tide gates
Goffe Street Armory	\$104,000	Local shareof Shipo grant
State	\$2,978,150	covers Shipo grant and anticipated funds from DECD
Wintergreen Armory	\$260,000	Upgrades to the armory to accommodate usage
Pre Capital Feasability Study-Youth Center	\$270,000	pre capital feasability study

Summary of Open Items:

- **Grand Avenue Bridge over the Quinnipiac River**

Currently the agreement with Hardesty and Hanover has not been executed. It been a frustrating effort to move the approval process through DOT even though we have an agreement with DOT in place. Follow-through is required with DOT to get the final approval for the H&H Agreement. . Expect a fall execution. Note: that while we have the funds for design, construction funding is not in place and would have to be secured. Expect that need in two years estimated over \$20 million.

- **Church Street South Bridge**

This is a recently built bridge over the Rail yard from Union Street to Sargent Drive. Two expansion joints have failed and need repair. A design for the repair has been completed by Hardesty and Hanover; however we have been discussing this as a structural issue and felt that this was a responsibility of DOT. They disagree pointing out the agreement with the City when this bridge was built. It is unlikely to have them move on this as their responsibility. We have met with the Designer PB who is willing to help in some manner due to failure of their design in such a short time. Follow-through is required with PB to have a financial commitment so we can bid this out in the near future.

- **Crown Street Bridge**

The contract is in the process of being awarded to AI Engineers. The agreement needs to be executed. This project will affect Gateway College, so close coordination will be required. Presently design plans are approximately 10 % complete. Earliest construction would be late Spring/early Summer 2014.

- **George Street Bridge**

This project is currently under design by Spiegel Zamenic and Shaw. Upon completion funds need to be allocated to advertise. 50% is from the State and remainder is the city Local Bridge funds estimated at \$900,000 and includes the tunnel ventilation.

- **Master Municipal Agreement**

A Master Municipal Agreement has been proposed by DOT to help streamline the agreement process for projects that are funded in part by DOT. A Board of Alderman Submission has been made and approved. Mayors signature is required to complete the Agreement.

- **Agreement with Chase Thermal Energies**

The City's current agreement with Chase will end in December. The agreement outlines the process for providing heat and cooling to the government center buildings. What our amendment does is to extend the services to the end of the life of the Fuel Cell to 2022. A draft has been developed and provided to Corporation Counsel for review. We are asking for clarification on how capital expenditures will

be allocated if the system needs upgrading. The agreement will have to be approved by the BOA

- **Complete Streets Follow-through**

The program for complete streets is quite comprehensive. Fifty requests have been made that many require design effort and are costly. While concepts have been identified there is a need to complete detail designs. This program has a process of review with the Resource Committee of the BOA.

- **Youth Services studies**

Last year the BOA approved funding to begin a process for the review of facilities throughout the City to provide much needed services and opportunities for City Youth. This was broken down into two areas. One was to evaluate the potential of the Q house the other deals with the rest of the City as a Study. The way the RFPs were constructed, the BOA and Youth Services are integral to the process so the needs and direction of the youth needs can be handled. For the Q house Zared Architects were selected and for the Youth Services Study DTC. Meetings and follow-through on issues are required to insure these projects are progressing as expected and are successful.

- **Shoreline Stabilization projects**

What has become acute throughout the shoreline as a result of the recent storms and hurricanes has been severe erosion that threatens property and park land. Several attempts have been made to obtain funding from FEMA and other sources to help solve this problem without much success. Highlighted are four areas that need follow-through with the State or Federal agencies to help move these needed projects along.

- **Brewery Seawall:** This has been design and a DEEP permit obtained. The park that nears the Ferry Street Bridge is unusable and erosion is causing a number of sink holes. \$900,000 is needed to perform the repairs. Suggest to see if it can be segmented to start repairs on portions of the wall using some existing city funds.
- **Morris Cove Seawall:** The City had engaged Dewberry to identify a solution to a sensitive area in Morris cove where several home are at risk of collapse as the tide action undermines foundation. The project would require sheet piling at a cost of \$1.4 million. What makes this difficult is the private ownership. An alternative would be to solicit the COE to help fund this proposal. Contact has been made with Christopher Hatfield of the COE (978-318-8520) who has indicated that they can re-look at the Morris Cover Seawall issue but need \$20K from the City to proceed. This needs follow-up action.
- **River Street Seawall:** This has been an Economic Development Project that reinforces the edge of the harbor using EDC funding. To complete the effort additional funds are required. DEEP permits have been approved
- **Long Wharf Drive:** This is an erosion problem the City Plan had been working on. As a result of Storm Sandy and Irene there are limited funds

to be able to repair a portion of the damage prior to the storm events. This needs to move forward. Suggest Engineering take the lead and advertise for the limited repairs.

- **Drainage repairs for the Long Wharf outlet near the Visitors Center**

As a result of the Storms the Outlet retaining wall is failing. A design has been developed and a portion of the work is eligible for FEMA funding. Unfortunately, the original estimate of damage done by a consultant was very low and the actual cost close to \$150,000. Reconciling this difference and getting this moving is a funding issue that needs to be resolved.

- **Drainage for East Shore**

The East shore Drainage is in need of redesign as a result of several issues. First is the outlet on Cove Place has been silted in. To address this, the pipe which extends across Anthony's beach would need to be extended into the Cove. This would be very difficult to obtain a DEEP permit to do so. A few years ago Henry Goetz, a former Engineer and since has passed away, tied an overflow into the pipe on Morris causeway. Our investigation has indicated the pipe in Morris Causeway has a reverse pitch which is a problem. Further a study was performed by Dewberry to solve the flooding issue on Dean Street. We only were able to do a temporary measure using portable pumps. What the concept plan calls for is a storm water pumping system that collects the drainage and discharges to Morris creek with a higher berm placement along Morris Creek. This is a long term problem and is expected to cost \$5-7 million.

- **Streetlight System Retrofit**

We are undertaking a complete retrofitting of our street lighting system to LED technology. Not only does it reduce energy consumption by almost 60%, but also provides a brighter, whiter light that significantly enhances public safety. Approximately 11,000 fixtures will be retrofitted in three phases. The Engineering Department has secured incentive funding and on-bill financing (totaling ~\$1.4 million) from the CT Energy Efficiency Fund and United Illuminating for the first two phases of the project, and expects to receive funding for the third phase in early 2014. This major upgrade of the streetlighting system will significantly reduce energy costs and maintenance costs while providing superior performance. Note that no City money has been used for the project above and beyond normal operating expenses for the system.

- **CSO coordination**

We continue to be partners with the GNHWPCA for Sewer separation work. Our contribution is 40% of the costs after grant funding have been provided. Expect this effort to continue. Trumbull Street Phase 2A is Design approved and awaiting competitive bids. This project is including "Green Infrastructure" features within the project area.

○ **Permitting issues**

The City has certain requirements to comply with State and local regulations. State permits apply to drainage outlets, transfer station, landfill closing and sewer separation program as well as any other jurisdictional requirements in Wetlands or shoreline areas. Highlighted on a regular basis are as follows:

- Landfill: Air quality monitoring
- Transfer Station : Operational permit for each of the functions
- Annual Storm water discharge quality
- MS4 Permits
- UST update permits

○ **Dam Inventory**

This is a new requirement to inspect any dam that exists within the city limits. Highlighted are dams located on Beaver Pond, Pond Lilly and possibly our tide gates on the West River, Mill River and Morris Creek

• **Wintergreen Reserve Center and Goffe Street Armory**

Over the past two years the city has acquired two buildings that formerly served the National Guard and Army Reserve. Extensive reviews have evaluated the building for municipal use and follow-through is required to implement building changes and usage. The BOA is involved with how these structures will be utilized.

• **Public Works Garage**

Recently we had a report performed by Spiegel Zamecnik and Shah, Inc to evaluate the maintenance garage floor due to the cracking of the deck. Based on that report the floor is in very poor condition and needs to be replaced. It is unsafe to continue use without immediate attention. I have directed SZS to put together a shoring plan and develop specifications for the repairs to be able to be budgeted next year. This is an expensive issue that could exceed \$3 million due to the temporary relocation of DPW, the total removal/replacement of the deck. It is an issue that can not wait. Temporary shoring must be in place before winter. Plans and Specifications are ready to bid for Phase I, which is shoring the existing maintenance deck, so that DPW can continue operations through the winter season. Construction should start by December 1st.

Major Projects:

Attached is a list of active project together with its current progress to date percent complete, associated issues, planned activities and project manger associated with each project. This is an ongoing report that is updated on a biweekly basis and discussed with the CAO. Listed below are the major programs that projects fall under. The descriptions and expected usage of funds are described to help understand the resources that are needed to maintain the city's infrastructure.

Bridge program: Under section 2-245 of the City's Code of Ordinances and Regulations the City Engineer is responsible to evaluate the city owned bridges and structural conditions. On a quarterly basis a report is provided to the Mayor and Board of Alderman highlighting the bridges of concern and action that is required to insure the safety of the bridges is maintained. Detail evaluations of bridges over 20 feet are provided by DOT on a periodic basis. Engineering uses this data to assess the safety of the bridge and take appropriate action. The city maintains 50 bridges. Funding allocation is usually out of Capital expenditures and highlights State and Federal participation on selected projects.

Facilities: Other than Schools the Engineering Department supports the condition and upgrades of city owned buildings. This effort is relatively new where Engineering is better suited for the many technical issues that need to be addressed on each of the facilities. The Government Center and Police Station is managed on a day to day basis by contracted services, Police by ORL and Government Center by Fusco. Engineering coordinates these efforts. Libraries, Fire, the Shubert Theater and Parks building and facilities are supported in major project work needed for various upgrades. Funding for selected improvements are provided through capital expenditures

Complete Streets: This is a program that is a follow through on the BOA efforts to endorse the Complete Street philosophy and Guidelines. Essentially the program takes into consideration the context of the environment needed to support various uses of the Right of Way in a safe and controlled manner. The program also provides a process where the public can highlight their concerns and have various improvement worked on. A BOA Resource Committee helps review potential projects consistent with the Capital Budget provided. Currently there are 54 requests.

Flood and Erosion and Drainage: Controlling the affects of storm water and flooding conditions within the city is an ongoing program. Drainage systems often need cleaning and repaired to control localized flooding issues. Where this gets more costly and difficult is along the shoreline where erosion issues due to storms are a constant threat and cause severe damages. Engineering has contracted a cleaning company to annually clean catch basins. Funding only allows to clean about 25% of the catch basins each year. For major projects capital funding is used.

Street lighting: The City maintains over 10,000 lights within the city. We contract maintenance of the street lights and Engineering periodically inspects the lights at night

and issues work orders to fix the outages. This program is going through a change where LED lighting will replace the High Pressure Sodium fixtures. LEDs are longer lasting, use less wattage, thus reflect cost savings and require less maintenance. We also receive rebates from UI and a no interest loan that is offset by our billing.

CSO Program: This is a program that is managed by GNHWPCA. Our participation is to fund 40% of the cost associated with replacing and upgrading the sanitary/stormwater sewer systems to minimize combined sewer overflow conditions. Engineering partners with GNHWPCA to insure the program is efficient and meets the city needs.