



Public Facilities Committee Report

City of Newton **In City Council**

Wednesday, February 5, 2020

Present: Councilors Leary (Chair), Kelley, Crossley, Norton, Kalis and Gentile

Absent: Councilors Danberg and Laredo

Also Present: Councilors Bowman and Downs

City Staff Present: Chief Operating Officer Jonathan Yeo, Department of Public Works Chief of Staff Shawna Sullivan, Director of Transportation for Planning Nicole Freedman, Commissioner of Public Works Jim McGonagle and Codirectors of Sustainability Bill Ferguson and Ann Berwick

#109-20 Appointment of Meryl Kessler to the Solid Waste Commission

HER HONOR THE MAYOR appointing MERYL KESSLER, 147 Prince Street, West Newton, as a member of the SOLID WASTE COMMISSION for a term to expire March 15, 2023. (60 days 04/03/20)

Action: **Public Facilities Approved 5-0 (Councilor Kalis not voting)**

Note: Meryl Kessler was present to explain her interest in being a part of the Solid Waste Commission. Ms. Kessler explained her eagerness to explore issues including recycling, opportunities with the Department of Environmental Protection's Master Plan and Newton's own Climate Action Plan. Additionally, Ms. Kessler explained that she is a lawyer and has worked for the League of Women Voters, at the state level, for 6 years where she worked on state legislation that deals with Solid Waste. The committee thanked her for her willingness to serve. Councilor Kelley motioned to approve which passed 5-0 with Councilor Kalis not voting.

#110-20 Appointment of Carl Valente to the Solid Waste Commission

HER HONOR THE MAYOR appointing CARL VALENTE, 84 Sumner Street, Newton, as a member of the SOLID WASTE COMMISSION for a term to expire March 15, 2023. (60 days: 04/03/20)

Action: **Public Facilities Approved 5-0 (Councilor Kalis voting)**

Note: Carl Valente was present to explain his interest in being a part of the Solid Waste Commission. Mr. Valente explained that he was previously a Town Manager for Lexington for 13 years, before that he was in similar positions in Weston and Needham. Additionally, Mr. Valente explained he is eager to see what he can do for the city as a member of the Solid Waste Commission. While working in Lexington Mr. Valente worked on reconfiguring their Recycling

Center to make it more complex. The committee thanked him for his willingness to serve. Councilor Crossley motioned to approve which passed 5-0 with Councilor Kalis not voting.

#55-20 Update on the status of the Solar Phase 3 Projects

COUNCILOR CROSSLEY requesting an update on the status of the Solar Phase 3 Projects.

Action: **Public Facilities Held 6-0**

Note: Bill Ferguson, Codirector of Sustainability, updated the committee on the Solar Phase 3 Projects. Mr. Ferguson thanked the committee for their continued support. There are two separate contractors for the Solar Phase 3 projects, Ameresco and Macquarie. The schedule for the projects is attached to this report.

Ameresco Projects

Mr. Ferguson explained that Ameresco has 3 Roof Site Projects. For these projects the panels have been installed and the construction is finished. The final part of the project is an inspection from the Electrical department which is expected to happen on February 6, 2020 and the solar panels should be online by the end of the month.

The North High School Parking Canopy Sites are expected to be completed in the spring/summer of 2020. These will take place on Walnut Street and Lowell Avenue. The plan is to put foundation in during Spring Break, which may take a week longer on the Lowell Avenue project. This may cause parking issues on that side of the school, but Mr. Ferguson has been working with the School Department, the Newton Police Department and the Traffic Council and there is a plan to handle the parking issues. Mr. Ferguson also met with residents next to Lowell Avenue to explain the project and go over the parking issues during construction.

For the Newton Free Library, Mr. Ferguson explained they have gone in front of the Board of Trustees and the Design Review Committee (DRC), who have approved the Solar Panel Project. Currently, they are awaiting the Planning Memo from the Design Review Team and the approval letter from the DRC. The next step is to come back to the Public Facilities Committee, which may happen by the end of March 2020.

The FA Day project has been cancelled due to concerns on the condition of the roof. Mr. Ferguson explained that the concerns were about the roof membrane and the insulation underneath the membrane. The insulation had some saturation which is adding an additional amount of weight to the roof which makes it difficult for the structural engineers to determine how that will impact the structural reports.

The committee asked the following questions regarding the FA Day Project.

Q: How old is the roof membrane?

A: Mr. Ferguson explained that the membrane is over 20 years old.

Q: Will the committee see an item about repairing the roof?

A: Mr. Ferguson explained he does not believe so, but the Commissioner Public Buildings is aware of the issues with the roof. This is not a dangerous situation but could become an issue with the added weight of solar panels.

The Chair noted that there should be a conversation with Commissioner Josh Morse about repairing the roof at FA Day.

Macquarie Projects

The roof projects are scheduled for late spring/early summer 2020. Additionally, the parking lot canopy projects for the Pleasant Street lot and Memorial Spaulding Elementary are scheduled for late spring/early summer. The rest of the projects are all projected for summer 2020, so to not disturb parking and traffic in those areas.

Macquarie has made progress on the Interconnection Service Agreement with Eversource, which can take up to 90 days. Eight of the eleven projects have completed that step and the last three will be completed shortly. Additionally, Macquarie must submit their application to the state for the Solar Massachusetts Renewable Target (SMART) incentives which can take 4-6 weeks. Both the Interconnection Service agreement and the application for the SMART incentives need to be done in the next couple of months to stay on schedule. Mr. Ferguson has a conference call with Macquarie every week to make sure each piece of the project is on track.

The committee asked the following questions.

Q: Why are the Ameresco projects farther along than the Macquarie projects?

A: Mr. Ferguson explained that the city has dealt exclusively with Ameresco, with the exemption of these latest projects. Ameresco did not bid all the sites and were accepted on the projects they did bid because of their qualifications. Macquarie has a developer called HESP Solar which has not worked in Massachusetts. Part of the problem is that Ameresco has the connection with Eversource and the state which can help get through the process faster. Additionally, Macquarie had a project leader that left in July and when he left that slowed down the process. There is now a new permanent project leader in place.

Q: Does the city have an experience yet with Macquarie and construction?

A: Mr. Ferguson explained that Macquarie has not done any construction yet. Macquarie does have a contractor that has experience in Massachusetts.

Q: Does Macquarie have the capacity to do the proposed number of projects over the summer?

A: Mr. Ferguson explained that he has spoken to the contractor and the contractor knows how to approach these projects on a schedule. Before construction, the contractor does need to precure materials but to do that he does need to go through Macquarie. Mr. Ferguson has emphasized with Macquarie that the school projects need to be done in the summer.

Q: Does the city have any leverage on scheduling in the contracts?

A: No. Mr. Ferguson explained that because Macquarie and Ameresco must get the agreement from Eversource and apply for the SMART incentive it is difficult to set a date for when they must complete the project by. Additionally, the companies need to precure the materials for the project which could take several months.

Q: Did Ameresco bid on any of the projects that Macquarie won the bid for?

A: Mr. Ferguson explained that he believes that Ameresco were chosen for all the projects that they bid for. Macquarie pricing was better than Ameresco on all the sites. Ameresco was chosen for the sites that they bid because of their qualifications. Additionally, Ameresco lost a key member to their team, so when the request for proposal came out Ameresco was limited on how many they could respond too.

Q: When the Board of Trustees and the DRC approved the Newton Free Library project were they also looking at the parking lot and what the cost of the parking lot would be?

A: Mr. Ferguson explained the Board of Trustees and the DRC have looked at the parking lay out and the decision was that the panels would be running perpendicular to Homer Street. This creates a centralized walkway, will help with traffic flow and add 24 parking spots. Mr. Ferguson that the cost of the parking lot would be a DPW question.

Q: What is the next step for the Newton Free Library project?

A: Mr. Ferguson explained that he will come back to the committee to move the 5-58 process. The Department of Public Works would be in attendance and they would be able to talk about how stormwater management will be integrated into the plan and Environmental Partners will help form that plan.

Mr. Ferguson will be able to get projected savings vs. real savings on the Solar Phase projects to the Council at the next meeting on Solar Phase 3.

Councilor Crossley motioned to hold the item which passed 6-0.

#60-20 Update on the Climate Action Plan

PUBLIC FACILITIES COMMITTEE requesting updates on the status of the Climate Action Plan.

Action: Public Facilities Held 6-0

Note: Nicole Freedman, the Director of Transportation, presented the update on the Climate Action Plan. The Climate Action Plan was approved a couple months ago and not only did city staff work on the plan but there was also input from the Citizens Commission on Energy and Green Newton. Ms. Freedman explained that Jonathan Yeo, Chief Operating Officer started the implementation process by creating the Climate Action Plan Cluster. This cluster includes Ann Berwick (Codirector of Sustainability), Bill Ferguson (Codirector of Sustainability), Jennifer Steel (Senior Planner for Planning & Development), Nicole Freedman, Jonathan Yeo and others are invited as needed. Ms. Freedman provided the attached chart of projects in the Climate Action Plan.

Airplane Effect

Ms. Berwick explained that this is big problem which the cluster is continuing to investigate solutions to. One of the solutions can be an offset program. There are many offset programs out there, but many do not buy an offset when they travel because they do not know which ones they can trust. The cluster discussed having an offset program in Newton, which would include a tree planting program. Former Councilor Barbara Brousal-Glazer is investigating the offset programs that do exist. Additionally, Newton South High School students are helping in a “adopt a block” program where they will be giving informal surveys about purchasing offsets.

Complete Streets Project

Ms. Freedman explained that she does give an annual update of the Complete Streets Program to the Public Facilities Committee and will continue to update the committee as the program moves forward. In the last calendar year, the department reviewed 31 projects, implemented and installed 10 projects and there a few that the department is working on now. The Beacon Street Bike Lane project will be having a public meeting on March 12th. That will be bike lanes from Washington Street straight through to Centre Street. On Braeland Avenue pedestrian walkways were painted on the street with a bike lane. Complete Streets continues to move forward.

Energy Coach

Mr. Ferguson explained that the Energy Coach’s job will include providing technical support and information for residents and small businesses that will help make buildings more energy efficient. Additionally, the Energy Coach will be there to give advice on new technology that are available for new construction and retrofits. This will include passive house design principals and use of heat pumps. Mr. Ferguson explained that they do have a job description which has been vetted by several people including representatives from the Energy Commission. Once the job description was vetted it was sent to the Human Resources (HR) Department and HR has sent back the official job description. Currently the paperwork is being put together to be able to officially post the position which should be done soon. Mr. Yeo explained that there is a grant from National Grid that will cover the cost of the position for the current fiscal year and the position will be in next year’s budget.

Electric Vehicles (EV) Charging & Preferential Parking

Ms. Freedman explained that there are now 10 locations of chargers in Newton. Recently there have been chargers added to the Richardson Public Lot, the Lexington Public Lot and Craft Street. Eversource has a program called "Make Ready" where they do all of the underground work for the EV chargers and that is critical because in Massachusetts the underground work could cost \$50,000 to \$100,000. The charger cost \$6,000 to \$9,000. The city has been working with Eversource to install more chargers in public lots and public parking spaces. This work has included the Pleasant Street lot, on Washington and Walnut for commuters and the Adam Street lot. The city is also working on preferential parking for electric vehicles in public lots. The goal is to have spots that say EV parking only in all public lots.

The committee asked the following questions regarding EV Charging & Preferential Parking.

Q: How will the city enforce the preferential parking spots for EVs?

A: Ms. Freedman explained there are a couple of policy issues that are being worked on. Currently there is a question on whether the city will enforce the preferential parking spots. If the city does want to enforce, the only reliable way to do that is through a permit program. An EV plate is not reliable because those can be purchased for Hybrid cars as well. There is also not decals on the back of the cars that specifies that it is an EV. If there is a sticker program, then visitors will not necessarily know about it. A decision has not been made at this time. The cluster has been working with the Newton Police Department on enforcement.

Q: Is there a goal for how many EV charging spots will be added per year?

A: Ms. Freedman explained as of now about 1% of all vehicles in Newton are EVs. For now, the city would only want one per parking lot but that could flex up over time. There might be more in larger lots. Mr. Yeo explained that Mr. Ferguson has been working with electric companies on charging stations at the new canopies that are coming in for the schools and public parking lots. Additionally, Ms. Freedman explained that Eversource is running conduit so that the city can have 5 to 6 chargers in the future.

Q: Who owns the EV charging stations?

A: Ms. Freedman explained that the charging stations that are in the War Memorial, Craft Street and Eliot are city owned. The charging stations in the public lots are owned and operated by Green Spot. Green Spot is free, within reason, to set the rates for charging at their stations. The owner of the vehicle is billed by Green Spot. Additionally, Green Spot is required to share with the city their data on the charging stations in Newton.

Q: Why is the city using Green Spot instead of Charge Point for the EV charging stations?

A: Ms. Freedman explained that Green Spot does the operations and purchases a charger from an outside company. But Green Spot is not using Charge Point chargers. Charge Point has 90% of the market but are also the most expensive chargers.

Q: Does the city have any input on the rates that Green Spot will be charging and how will the rates at a public charging station differ from having a charging station at a home?

A: Ms. Berwick explained that depending on the charger they may be on different rates that are specified by the Department of Public Utilities (DPU). Some of those rates are similar to the price that someone would be paying at their house and others can be double the rate. The city has been talking to both Eversource and the state's Executive Office of Energy and Environmental Affairs on what the city can do to solve that problem.

Q: Can the council have a list of where of the EV chargers will be?

A: Ms. Freedman noted that the next step is to go out with Eversource to decide where the spots will be. Eversource chooses a spot based on how close it is to a power source. Mr. Yeo noted if the committee has any suggestions then they can consider those options when going out with Eversource.

Q: Is the city considering a program where renters or someone that does not have a charging station at home would have a place to charge their vehicles?

A: Ms. Freedman explained that this is an issue they are still investigating.

Q: Is there a need to have charging stations for electric bicycles in Newton?

A: Ms. Yeo explained that this an issue that they will further investigate. Ms. Freedman explained that they have been working with the company that runs "Park & Pedal" and they would like to pilot a program making electric bikes available to the public at Albemarle field.

Heet Smart

Ms. Berwick explained that the Heet Smart program runs out of the Mass Clean Energy Center (Mass CEC) and the city has received a grant from the Mass CEC. This is a volunteer run program and the purpose is to encourage residences and businesses to use heat pumps for heating, and hot water. The Mass CEC has a consultant that will give marketing and other advice to the recipients of the grant above the \$10,000. The volunteers are being led by Craig Forman from Green Newton.

Idling Policy (City Vehicles)

Ms. Berwick explained that she has been working with DPW's Chief of State Shawna Sullivan on creating a flyer about the idling policy for city vehicles. With the flyer completed, the next question is whether it would come from each department or whether it will come from the Mayor.

The committee asked the following questions regarding the Idling Policy for City Vehicles.

Q: Does this policy include Police vehicles?

A: Ms. Berwick explained that this does include police officers but there are some exemptions in the policy. The policy states that it is state law that you can't idle for more than 5 minutes. The exemptions from that include when the defroster needs to be on, or when the heat or A.C. needs to be on.

Q: Are school buses exempt?

A: Safe Routes to School has been monitoring the issue of school buses and what they have found is that the yellow school busses are good at turning off their engines. The only time the yellow busses would have their engines on and are required to have their engines on is when they are unloading and loading and have their stop signs out. The problem at the schools is the private vans. The vans, especially at Newton North High School, will show up 45 minutes before school ends to secure parking at the curb. Regina Moody and Liam Hurley are working on this issue, but they could use more messaging. But the policy in question is regarding municipal vehicles and school busses/ vans are a work in progress.

Memorandum of Understanding (MOU)

Mr. Ferguson explained that they have been working with Eversource and National Grid to put together an agreement on how to support each other on implementing utility and Mass SAVE sponsored programs. A document has been drafted that sets targets for implementation of certain measures and expands for 3 years. The Energy Coach is a component of MOU by explaining to residents what rebates are available and how to access them. There also a component to address the 10 largest energy users in Newton. The city and the utilities would work out an MOU with the 10 largest users to try to get them to set their own sustainability goals and this could lead to their own Climate Action Plan. Mr. Ferguson explained that he and Ms. Berwick will be meeting with the utilities to make sure that targets are being reached. Mr. Ferguson explained that they will be able to share the list of the 10 biggest users with the committee.

Newton Power Choice

Ms. Berwick explained that the city has about a year to go on the 22 month contract. As of now, 7.2% of the accounts have opted up to 100%. The DPU requires every city and town to send out an opt out card to residents and the card does not give an option to opt up, which could be contributing to only 7.2% opting up. Ms. Berwick explained she has been working with the DPU to revise the card to have the opt up option. Green Newton and Mothers Out Front have had informational tables at the library and other messaging programs to help educate residents on Newton Power Choice. Additionally, Ms. Berwick has been working with other communities on their power choices.

The committee asked the following questions on Newton Power Choice.

Q: When a resident opts up they should be paying less in electricity bills. If this is true, then why is it difficult to get 100% residents to opt up?

A: Mr. Berwick explained the renewable energy credit prices are increasing and will continue to increase. When the city went out to bid the energy credit prices were at a historic low. But in this current 22 month contract the residents who opted up should be paying less.

Q: There also is a basic choice of 60%, which would also save the resident money. Since Eversource can change their rates every 6 months, can't they change the rates to stay more competitive to get residents to stay with their basic service?

A: Ms. Berwick explained that this is not the case. Eversource's rates for power are established by what they can get when they go out to bid on the market. The Eversource rates are higher than Newton Power Choice in the summer and lower in the winter.

The committee thanked Ms. Berwick for her work in the Newton Power Choice program.

Scorecard

Ms. Berwick explained that this has been a high priority for the Citizens Energy Commission and what they would like is to require people to have an energy scorecard when they sell their home. The Newton Law Department has stated that the city can't require that. Currently, Mass SAVE is in the process of developing a scorecard. Once this scorecard is determined the city will work with the Citizens Energy Commission on encouraging realtors to use the scorecard.

Transportation Management Association (TMA)

Ms. Freedman explained the city has officially joined the Watertown TMA as of November 2019 and the TMA will be working with city employees and school staff to help transition commutes to more sustainable methods. One of the reasons for joining the TMA is because every time there is a new development being discussed, transportation is always questioned. This will allow the city to have stricter transportation demand management requirements in the special permit for the developer. The planning department sent out a survey to city staff and school employees about how they commute to work and there were about 1,000 responses. As of now, what stands out is that there are a lot of employees who are driving alone to work. 2% of the respondents do have electric vehicles. The full results have not been analyzed yet.

The committee asked the following questions about the TMA.

Q: The TMA is not up with shuttle services yet and in Watertown there are a number of private shuttle services. How will private shuttles work with municipal shuttles?

A: Ms. Freedman explained that the shuttle services working together is not an issue in the city yet, because the lack of a shuttle service, and the department will be investigating this further in the future.

Zoning

Mr. Yeo explained that at the end of last term the city made the energy efficiencies changes to zoning improvements. Currently, the city is working with the Zoning and Planning Committee on the Criteria in 5 and are discussing other topics to work on in the upcoming years. There are many ordinance changes embedded in the Climate Action Plan and some of those have been docketed already. The changes in the Criteria in 5 requires a commitment to the reduction of energy and natural resources. There will also be a clarification of the language describing the criteria in the special permit criteria. The question currently is how the city can reduce the threshold of compliance with that criteria in special permits and seeing if there is a way to get at this for by-right construction without challenging building code. Additionally, there is a docket item about model the Watertown ordinance requirement on installing solar panels on the rooftop of buildings or rooftops over a certain size. Lastly, an item that has not been docketed yet is a requirement for new construction and major renovation to have an assessment done on any electric alternative so that the building owner has a choice.

Councilor Kalis motioned to hold the item which passed 6-0.

Chairs Note: *The Public Works Department updated the committee on the Accelerated Roads Program.*

Note: Jim McGonagle the Commissioner of Public Works explained that as they come into year 4 of the Accelerated Roads program there is a lot more going on than first anticipated. The program has been renamed the Transportation Network Improvements Program and pavement and sidewalk management is a part of that. Commissioner McGonagle explained that the department would like to come back in spring to discuss the other components of the program.

Conrad Ledger's, a representative from Beta, illustrated how strategic well-managed maintenance measures can extend the life of the roadway, in a cost-effective way. He noted that as the type of repair becomes more invasive, the cost increases. Mr. Ledger presented the attached PowerPoint, emphasizing the importance of planning the appropriate methods of preventive maintenance in order to maximize the value of investments in roadway rehabilitation and reconstruction. Mr. Ledger reviewed methods of preventive, maintenance that have and will be used moving forward.

The program starts in the fall of each year where there is an update on the pavement management program and a look at the strategies they are using to preserve and rehabilitate the roads. This is done by re-inspecting the road network or updates to construction history. Each roadway is broken down into categories based on the Pavement Condition Index (PCI). The lower the PCI rating, the worse off the roadway is. Mr. Ledger explained that the City is now working with RoadBotics to survey the street. He explained that the RoadBotics technology is new but cost effective and provides high resolution photographs for every 10' of the roadway.

A backlog summary of the road network is outlined in Mr. Ledger's attached presentation. As part of this program they have seen how many roadways fall under the PCI of 25 or less. Mr. McGonagle explained that a lot of the roads that are under 25 are small residential streets that would not be looked at for 10-12 years in the program. The new goal is to go after the roads that are 25 or less with an overlay strategy and all of these roads should now be addressed by July of 2021. The overall PCI rating has increased since 2016, which is stated in the attached presentation.

The sidewalk safety improvements and 2020 road treatments are outlined in the attached report. These treatments include crack seal and fog seal, which will be used on roads that have a PCI of 75-90. Bonded wearing course is for preventative maintenance and was used on River Street and Nahanton Street this past year. Additionally, bonded wearing course can be used for roadways that are further down the curve. There are significant cost savings between a bonded wearing course and a complete mill and overlay of a roadway. Recently, hot-place recycling was used on Wells Avenue and the benefit of this maintenance is traffic control. The topcoat is hot mixed asphalt and the rest of the materials are just recycling the existing roads. When there is a complete rehabilitation of a road, they use mill and overlay or reclamation. Additionally, in this year's program they are going to try a pilot for concrete overlay. This is for the concrete roads so that the city can do maintenance of the roads without spending a large sum of money. Mr. McGonagle explained they will be trying this on Cherry Street this year.

The concurrent work and maps of the proposed construction that is happening is shown in the attached report. Mr. McGonagle explained that the last inspection was done in October 2018 and the next inspection will happen this fall.

Mr. McGonagle explained the attached Transportation Network Improvement projects and the department will be coming back to the committee for a more extensive update. Additionally, Mr. McGonagle will be returning to the committee for an update on Washington Street and what the pilot will be like throughout that area.

The committee asked the following questions.

Q: Why did the city put in concrete roads?

A: Mr. McGonagle explained that the concrete roads go back decades and were used nationwide. Concrete roads are not cost effective and to re-do the roads the city would have to remove all the existing concrete and lay new concrete down.

Q: How is the city handling the intersection in some of the major projects, for example Four Corners?

A: Mr. McGonagle explained that Four Corners is an intersection project. But for the other projects that they will be adding crosswalks and tighten up some of the intersections.

Q: How is the city keeping track of crosswalks and when they need maintenance?

A: Mr. McGonagle explained that the city now has software where they can keep track of all the traffic markings throughout the city.

Referred to Public Facilities and Finance Committees

#114-20 Approve \$500,000 for snow and ice removal

HER HONOR THE MAYOR requesting authorization to transfer the sum of five hundred thousand dollars (\$500,000) from the Budget Reserve – Snow and Ice Removal Account to the following accounts:

DPW Overtime, Snow & Ice Removal
(0140123-513010)..... \$200,000
DPW Rental Vehicles/Subcontractors
(0140123-527301)..... \$300,000

Action: **Public Facilities Approved 5-0 (Councilor Crossley not voting)**

Note: Jim McGonagle, Commissioner of Public Works presented the request for \$500,000 for snow and ice removal. Currently there is \$3.5 million in the snow budget and the department has spent \$2.8 million. There have been 12 snow events with 23 inches of snow. Councilor Kalis motioned to approve which passed 5-0 with Councilor Crossley not voting.

Respectfully Submitted,

Alison M. Leary, Chair

PHASE 3 SOLAR SCHEDULE

	Ameresco projects
	Macquarie projects

Roof Sites		Total First Year Output (kWh)	Schedule
1	Education Center roof	95,799	on line 2-28-20
2	Fire Station #3 and Headquarters	77,395	on line 2-28-20
3	Zervas Elementary School	216,094	on line 2-28-20
	FA Day Middle School		cancelled
4	Angier Elementary School- Gym roof	98,208	spring/summer 2020
5	Williams Elementary School	149,041	spring/summer 2020
6	Cabot Elementary School	142,409	spring/summer 2020
7	Carr Elementary School	66,161	spring/summer 2020
Total Phase 3 Roof sites kWh		845,107	

Parking Lot Canopy Sites			
8	Newton Free Library	326,023	summer/fall 2020
9	North High School - Walnut Street	354,392	spring/summer 2020
10	North High School - Lowell Ave	582,786	spring/summer 2020
11	Pleasant Street lot, Newton Centre	120,656	spring/summer 2020
12	Brown Middle School-Wheeler Road	313,500	summer 2020
13	Brown Middle School- behind	321,338	summer 2020
14	Oak Hill Middle School	197,117	summer 2020
15	Memorial Spaulding Elementary School	204,698	spring/summer 2020
16	Education Center	335,119	summer 2020
17	Mason Rice Elementary School	200,824	summer 2020
Total Phase 3 Canopy sites kWh		2,956,453	

Phases	Annual kWh	Per Cent of Municipal Use
Phase 3 Total kWh-design	3,801,560	18%
Phase 2 Total kWh-actual	3,688,399	18%
Phase 1 Total kWh-actual	734,813	4%
All Phases kWh	8,224,772	40%
Municipal Total Use kWh	20,794,848	