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>>> GOOD AFTERNOON, LADIES AND GENTLEMEN.

WELCOME TO THE IANELLA CHAMBER.

I'M THE CHAIR OF THE COUNCIL'S COMMITTEE ON ENVIRONMENT, SUSTAINABILITY, AND PARKS.

I'M JOINED BY CITY COUNCILOR AT-LARGE, MICHELLE WU.

TODAY WE'RE HERE TO DISCUSS AN ORDER FOR HEARING ON THE FEASIBILITY OF REQUIRING ALL NEW MUNICIPAL BRILDINGS TO COMPLY WITH NET-ZERO-CARBON -- BUILDINGS TO COMPLY WITH NET-ZERO-CARBON REQUIREMENTS IN BOSTON.

I'M GOING TO BREAK THE RULES OF CHAMBER AND SAY LET'S HEAR A ROUND OF APPLAUSE FOR THE BOSTON CLEAN ENERGY COALITION FOR THEIR GREAT WORK.

[APPLAUSE]

>> SPECIFICALLY WANTED TO MENTION RICKY AND CHRIS.

CHRIS COULDN'T MAKE IT, BUT HE'S BEEN OUR RESIDENT EXPERT.

OVER THE LAST TWO YEARS, WE HAVE WORKED IN CONCERT WITH RESEARCHERS, WITH ACADEMICS, WITH LAWYERS, WITH ARCHITECTS, WITH OTHER STAKEHOLDERS THROUGH A SERIES OF WORKING SESSIONS ON NET-ZERO-CARBON.

IN ORDER TO ACHIEVE NET-ZERO-CARBON, THE TOTAL AMOUNT OF ENERGY USED BY THE BUILDING ON AN ANNUAL BASIS MUST BE EQUAL TO THE AMOUNT OF RENEWABLE ENERGY CREATED ONSITE OR OFFSITE.

TODAY'S HEARING I WOULDN'T SAY IS THE CULMINATION OF THE WORK, BUT IT IS ONE CRUCIAL PART OF THE CULMINATION OF THE WORK BECAUSE IT IS HIGH TIME BOSTON LEAD WITH ITS OWN REAL ESTATE PORTFOLIO.

LAST JANUARY, THE BOSTON GREEN RIBBON COMMISSION RELEASED THE

CARBON REPORT.

WHILE THE CONGESTION FEE LED MOST OF THE MEDIA COVERAGE, ONE OF THE BIGGEST TAKEAWAYS IS ONE OF THE MOST EFFECTIVE WAYS WE CAN ADDRESS THIS IS LOOKING AT OUR BUILDINGS, WHICH ACCOUNT FOR MORE THAN 70% OF OUR GREENHOUSE GAS EMISSIONS.

IN 2016, BOSTON EMITTED 6.4 MILLION METRIC TONS OF GREENHOUSE GASES.

I DON'T NEED TO TELL THE PEOPLE IN THIS ROOM WE ARE IN THE MIDST OF A BUILDING BOOM.

NOW I SEE THIS PROBLEM DISGUISED AS AN OPPORTUNITY.

WE OBVIOUSLY MUST BE WORKING WITH THE PRIVATE SECTOR TO DO EVERYTHING WE CAN TO GET NET-ZERO-CARBON ON THE PIPELINE WITH DEVELOPMENT, BUT WE CAN START BY LEADING WITH EXAMPLE. WHICH IS WHY COUNCILOR WU AND I TODAY ARE CALLING FOR HAVING A PLAN IN PLACE SO ALL NEW MUNICIPAL BUILDINGS WILL BE NET-ZERO-CARBON.

THIS IS GOOD FOR THE CITY'S FUTURE, FOR OUR RESILIENCY, FOR HOW WE DEAL WITH THESE DRAMATIC WEATHER EVENTS.

WE'RE GOING TO HEAR FROM JUST TWO PANELS.

THE FIRST PANEL WILL BE THE MAYORAL ADMINISTRATION PANEL. THEN WE HAVE SIX EXPERTS ON THE SECOND PANEL.

WE'LL OPEN IT UP FOR PUBLIC TESTIMONY AFTER THAT.

THIS HEARING IS BEING RECORDED AND BROADCAST ON CABLE AS WELL AS STREAMED AT BOSTON.GOV.

WE ARE HAPPY TO STAY AS LONG AS IT TAKES.

THERE'S A SIGN-UP SHEET IN THE BACK FOR THOSE WHO WOULD LIKE TO TESTIFY.

I WOULD LIKE TO INVITE COUNCILOR WU FOR ANY OPENING THOUGHTS.

>> I'LL JUST SAY THANK YOU VERY MUCH, MR. CHAIRMAN, FOR YOUR CONTINUED LEADERSHIP.

ALWAYS EXCIING PARTNER ON THESE

IDEAS.
WE HAVE A REALLY GREAT TRACK
RECORD IN FIGURING OUT THE STEPS
WE CAN TAKE IMMEDIATELY.
THERE'S BEEN A VACUUM ON
LEADERSHIP ON CLIMATE FROM OTHER
LEVELS OF GOVERNMENT.
GLAD TO PARTNER WITH SO MANY
COMMUNITY ACTIVISTS AND LEADERS
AS WELL.
THIS TIMES WELL WITH THE BUILD
BPS INITIATIVES AND
CONVERSATIONS WHERE WE HAVE A
MUNICIPAL FOOTPRINT -- NOT
CARBON FOOTPRINT, BUT A
MUNICIPAL PROPERTY THAT MAY BE
BUILT UP ON AND HOW THIS COULD
ADD OPPORTUNITY THERE.
THANK YOU TO EVERYONE WHO WILL
TESTIFY AND SPEAK.
>> THANK YOU, MICHELLE.
OUR FIRST PANEL WILL INTRODUCE
THEMSELVES.
WE'LL START WITH TRISHA LYONS.
>> AS YOU SAID, I'M TRISHA
LYONS.
I'M DIRECTOR OF THE PUBLIC
FACILITIES DEPARTMENT FOR THE
CITY.
>> CHRIS COOK, CHIEF OF
ENVIRONMENT ENERGY AND OPEN
SPACE.
>> IF IT PLEASES YOU, MR. CHAIR,
I HAVE SOME OPENING REMARKS.
THANK YOU VERY MUCH FOR JOINING
US.
WE'RE JOINED BY SEVERAL MEMBERS
OF THE HARDWORKING STAFF OF THE
ENVIRONMENT DEPARTMENT,
INCLUDING ALISON, THE DIRECTOR
OF CLIMATE AND ENVIRONMENTAL
PLANNING AS WELL AS THE HEAD OF
OUR INTERAGENCY GREEN BUILDING
COUNCIL AND IS RESPONSIBLE
MOSTLY FOR THE ARTICLE 37 REVIEW
THAT TAKES PLACE IN COORDINATION
WITH THE BOSTON PLANNING
DEVELOPMENT AGENCY.
I JUST WANT TO THANK THEM FOR
THEIR HARD WORK.
THANK YOU SO MUCH FOR THE
OPPORTUNITY TO TESTIFY.
IT'S HARD TO IMAGINE A MORE
IMPORTANT TOPIC THAN REDUCING

OUR CARBON EMISSIONS.

THE TASK IS THE DEFINING ISSUE
OF OUR TIME.

MAYOR WALSH AND THE CITY OF
BOSTON ARE COMMITTED TO CARBON
NEUTRALLY BY THE YEAR 2050.

IN FACT, WE'RE ACTUALLY
EXCEEDING OUR C-40 COMMITMENTS
AT THIS POINT.

IT IS THESE REASONS THAT MAYOR
WALSH ASKED THE GREEN RIBBON
COMMISSION TO COMMISSION A STUDY
TO SEE HOW BOSTON COULD ACHIEVE
THE GOAL OF NEUTRALITY.

THIS IS THE REPORT, COUNCILOR,
THAT YOU MENTIONED IN YOUR
OPENING REMARKS.

THE REPORT CARBON-FREE BOSTON
WAS COMPLETED BY THE BOSTON
UNIVERSITY'S INSTITUTE FOR
SUSTAINABLE ENERGY, AND IT
PRESENTS A COMPELLING ARGUMENT
FOR EARLY AND AGGRESSIVE ACTION
IN BOSTON'S BUILDING SECTOR.

THIS IS SOMETHING THE ADVOCACY
COMMUNITY DID NOT NEED A REPORT
TO TELL THEM.

HOWEVER, IT DOES REPRESENT A
ROAD MAP AND A POSSIBLE SET OF
SOLUTIONS FOR DEALING WITH OUR
SPECIFIC SET OF GREENHOUSE GAS
EMISSIONS.

BUILDINGS ACCOUNT FOR ROUGHLY
70% OF BOSTON'S EMISSIONS.

THE PATH TO NEUTRALITY FALLS
INTO THREE CORE ACTIONS.

BUILDINGS NEED TO BE AS
EFFICIENT AS POSSIBLE.

SYSTEMS GENERALLY NEED FULL

ELECTRIFICATION.

WE ARE VERY EXCITED ABOUT THE
POSITION AND THE PATH THAT THE
CITY IS ON TO INCREASE THE
SOURCE OF RENEWABLES IN OUR
ENERGY MIX.

THIS WILL MAKE BUILDINGS AND
THEIR ENERGY EFFICIENCY MORE
POSSIBLE AS WE MOVE FORWARD.

ALSO, I WANT TO RECOGNIZE THE
PROGRAM "RENEW BOSTON TRUST."

THE FIRST PHASE IS UNDER WAY,
AND THAT IS TO INSTALL ENERGY

AND CONSERVATION MEASURES OF RENEWABLE GENERATION ON MUNICIPAL BUILDINGS.

IT IS LED BY TRISHA LYONS, WHO HAS JOINED ME HERE TODAY.

WE USE RETROFITS TO PROVIDE CAPITAL FINANCING FOR DIFFERENT MUNICIPAL PROJECTS WHILE INCREASING THE EFFICIENCY OF THOSE BUILDINGS.

LAST YEAR'S FISCAL COMMITMENT TO THAT WAS \$11 MILLION.

IN THE UPCOMING FISCAL YEARS, IT WILL BE \$70 MILLION.

IF CARBON-FREE BOSTON IS THE "WHAT" OF WHAT WE NEED TO DO, OUR CURRENT CLIMATE PLAN IS GOING TO BE THE "HOW."

THERE ARE ENORMOUS EQUITY CONCERNS WHEN YOU TALK ABOUT CARBON NEUTRALITY GOALS.

WHO WE DO IT TO AND HOW WE DO IT IS VERY IMPORTANT.

THE CARBON-FREE BOSTON REPORT WAS SEQUENCED TO INFORM THE LAUNCHED UPDATE OF THE CITY OF BOSTON'S CLIMATE ACTION PLAN. TO DEMONSTRATE THE COLLABORATIVE NATURE OF THE CLIMATE ACTION PLAN AND ITS IMPORTANT WORK, IT IS IMPORTANT TO NOTE MEMBERS OF THE STEERING COMMITTEE.

THE STEERING COMMITTEE INCLUDES THE PUBLIC FACILITIES DEPARTMENT, THE BOSTON PLANNING AND DEVELOPMENT AGENCY, THE BOSTON TRANSPORTATION DEPARTMENT, THE INSPECTIONAL SERVICE DEPARTMENT, THE PUBLIC WORKS DEPARTMENT, ECONOMIC DEVELOPMENT, THE MAYOR'S OFFICE OF RESILIENCE AND RACIAL EQUALITY, AND THE LEGAL OFFICE.

ALSO, IT'S VERY IMPORTANT THAT THIS YEAR'S CLIMATE ACTION PLAN UPDATE IS GOING TO HAVE SIGNIFICANT PUBLIC OUTREACH.

WE WANT TO HEAR MOSTLY FROM THE BOSTONIANS THAT OUR CLIMATE ACTION PLAN IS GOING TO EFFECT.

THESE UPDATES TO THE CLIMATE ACTION PLAN WILL MOST LIKELY INCLUDE ZONING CHANGES AND CHANGES TO ARTICLE 37 TO MAKE

SURE WE ARE LIGHTNING FOCUSED ON REDUCING CARBON EMISSIONS.

BUILDINGS ACCOUNT FOR 70% OF BOSTON'S EMISSIONS.

IT'S IMPORTANT TO NOTE THAT CARBON-FREE BOSTON ALSO PREDICTS THAT 80% OF THE EXISTING BUILDING STOCK IN OUR CITY WILL LIKELY STILL EXIST BY 2050 WHEN WE HAVE TO HIT OUR CARBON NEUTRALITY GOAL.

THE CHALLENGE OF THIS SECTOR, THE CHALLENGE OF THESE EMISSIONS, IS ABOUT RETROFITS AND FINDING FINANCING TO MAKE THEM POSSIBLE.

I TRIED TO BE AS BRIEF AS POSSIBLE TO ALLOW FOR PUBLIC COMMENTS.

I'M HAPPY TO ANSWER ANY QUESTIONS THAT THE COUNCIL MAY HAVE.

>> THANK YOU, CHIEF.

DR. LYONS, OPENING THOUGHTS BEFORE WE GET INTO IT?

>> I WOULD JUST LIKE TO SORT OF ADD TO WHAT CHIEF COOK WAS TALKING ABOUT IN TERMS OF THIS BEING A VERY EXCITING MOMENT, I THINK, FOR THE CITY.

I THINK THAT UNDER THE CHIEF -- I THINK THE CHIEF IS VERY GENEROUS TO SAY THAT BOSTON PUBLIC TRUST IS LED BY BOSTON PUBLIC FACILITIES.

IN REALITY, IT IS A JOINT EFFORT.

UNDER THE CHIEF'S LEADERSHIP, WE'RE IN A PERIOD OF COLLABORATION AMONG CITY AGENCIES THAT WE CERTAINLY HAVEN'T SEEN IN A LONG TIME. AND I THINK THAT OPENS UP GREAT OPPORTUNITIES FOR CONTINUED IMPROVEMENT IN HOW WE DO OUR BUSINESS IN THE CITY.

I JUST WANTED TO ADD THAT CHIEF COOK IS A GREAT LEADER IN THIS ENVIRONMENT HERE.

>> I COULD NOT AGREE WITH YOU MORE ON THAT SENTIMENT.

WE ARE VERY PLEASED.

IT'S PROBABLY BEEN SIX MONTHS OR SO, MAYBE A LITTLE NORTH OF

THAT, CHIEF, SINCE YOU'VE BEEN ON THE JOB.

PERSONALLY, YOU'VE BEEN A GREAT PARTNER IN ALL THESE THINGS. I KNOW THE PEOPLE BEHIND YOU WOULD AGREE.

THANK YOU FOR THAT.

SOMETIMES THESE HEARINGS CAN BE A LITTLE TENSE, AND THAT'S JUST FADED AWAY.

CHIEF, I COULDN'T AGREE WITH YOU MORE ON THE EQUITY GOALS.

HOW WE DO IT AND TO WHOM WE DO IS IT IMPORTANT, SO WE CAN SOLVE THAT RIGHT NOW BY SAYING WE DO IT TO ALL NEW MUNICIPAL BUILDINGS GOING FORWARD.

>> I THINK THERE'S AN IMPORTANT DISTINCTION THERE.

OF COURSE, THIS IS MUCH MORE IN TRISHA'S BALLIWICK.

IT DOESN'T MEAN IT IS IMPOSSIBLE WITH RETROFITS AT ALL.

IT JUST MEANS AS WE APPROACH CAPITAL PROGRAMMING AND THE GOALS OF CAPITAL PROGRAMMING, WHEN YOU MAKE VALUE JUDGMENTS -- IT IS DIFFICULT TO MAKE A VALUE JUDGMENT THAT IS MORE IMPORTANT THAN THE SUSTAINABILITY OF OUR SPECIES WHEN YOU COMPARE IT TO GLOBAL WARMING.

A SCHOOL STILL HAS TO BE A SCHOOL, STILL HAS TO BE A CLASSROOM, STILL HAS TO BE OPEN. YOU HAVE TO DISTRIBUTE THAT CAPITAL BUDGET.

WHEN YOU LOOK AT RETRO FIT SYSTEMS, YOU WANT TO RETROFIT INTO SYSTEMS THAT ARE TRIED AND TRUE AND THAT ARE GOING TO LAST THE NORMAL CAPITAL LIFE FOR HOW LONG YOU EXPECT THAT TO BE.

WHEN YOU'RE STARTING FROM SCRATCH, I THINK THE PLANNING IS FAR EASIER FOR NET-ZERO-CARBON. THAT DOESN'T MEAN WE SHOULDN'T APPROACH BOTH.

IT JUST MEANS THERE'S A DIFFERENT SET OF DECISIONS, AND IT'S GOING TO HAVE TO BE A SLIGHTLY DIFFERENT PLAN OF HOW WE GET TO ZERO-NET-CARBON.

>> I THINK OUR PLAN ALL ALONG

HAS BEEN FOCUS ON MUNICIPAL BUILDINGS, NEW MUNICIPAL BUILDINGS, NEW COMMERCIAL AND PRIVATE BUILDINGS.

THEN WE GET TO RETROFIT.

THEN OBVIOUSLY MUNICIPAL RETROFITS WOULD KICK OFF OUR RETROFITS.

SCHOOLS, POLICE STATIONS, MUNICIPAL STATIONS.

>> WHAT I WOULD SAY IS THAT I THINK IT'S IMPORTANT THROUGH THE WORK OF CLIMATE ACTION PLAN TO DEVELOP THAT SPECIFIC GOAL IN THE MOST INCLUSIVE MANNER POSSIBLE.

THE CLIMATE ACTION PLAN INCLUDES A LOT OF DEPARTMENTS THAT TOUCH THAT CAPITAL BUDGET AND TOUCH THE PROGRAMMING CAPACITY OF THOSE BUDGETS.

WE WILL CERTAINLY STRIVE TO GET TO NET-ZERO-CARBON EMISSIONS AS SOON AS POSSIBLE ON ANY BUILDING THAT GETS BUILD, BUT I DO THERE'S GOING TO BE SOME PROGRAMMING DECISIONS ALONG THE WAY GIVEN THE TYPOLOGY OF SOME OF THOSE BUILDINGS.

THAT BEING SAID, WE CAN'T -- AND I DON'T MEAN TO CHANGE THE DIRECTION OF WHAT YOU JUST SAID, BUT I THINK "RENEW BOSTON TRUST" AND THAT MODEL WE'RE USING IS ACTUALLY A WAY TO ACCELERATE THE VERY DIFFICULT WORK THAT YOU IDENTIFIED IN THE RETROFIT ARENA.

AND I THINK WE'RE DEMONSTRATING WITH THIS FIRST PHASE OF EFFICIENCY WHERE THE SAVINGS ARE ACTUALLY PAYING FOR THEMSELVES. THE RETROFIT AREA MAY ACTUALLY BE A PLACE WHERE WE MAY BE ABLE TO MORE AGGRESSIVELY SPEND QUICKER.

THAT BEING SAID, WE ALSO DON'T BUILD THAT MANY NEW BUILDINGS ON AN ANNUAL BASIS.

TYPICALLY, THE PARKS CAPITAL BUDGET CYCLE RUNS IN THREE TO FIVE-YEAR CAPITAL CYCLES.

IT WOULD BE HARD TO IMAGINE A CLIMATE ACTION PLAN UPDATE THAT

DIDN'T RESULT IN VERY STRINGENT
CARBON NEUTRALITY REGULATIONS.

>> IN ADDITION, I'D LIKE TO HOPE
THAT AS THIS COLLABORATION
CONTINUES THAT WE, AS A CITY,
PLAN OUR STEPS FORWARD VERY
CAREFULLY.

I THINK THE CHIEF JUST REFERRED
TO SYSTEMS THAT ARE TRIED AND
TRUE.

I THINK IT'S VERY DANGEROUS IF
AS A CITY ORGANIZATION WE SORT
OF LEAPT INTO NEW SYSTEMS OR NEW
TECHNOLOGY THAT'S NOT TESTED AND
THAT IS VERY COMPLEX AND UNABLE
TO BE MAINTAINED.

THERE ARE CERTAINLY BALANCES, I
THINK, WE NEED TO TAKE AS A CITY
AND JOIN TO GO TO AND
BREAK THROUGH WHATEVER
ROADBLOCKS THERE MIGHT BE TOWARD
GETTING TO THE PLACE WHERE WE
NEED TO BE TO SUPPORT THOSE
SYSTEMS, TO SUPPORT THAT
TECHNOLOGY, BUT I THINK IN
WORKING TO GO TO WE CAN SORT OF
FIGURE OUT A WAY TO DO THAT.

>> NO, I APPRECIATE THAT.

>> AND IF IT'S ALL RIGHT, I CAN
GIVE AN EXAMPLE OF THE CURRENT
TECHNOLOGY GOING INTO THE
PLANNING OF THE BOSTON ARTS
ACADEMY.

>> SURE.

>> ONE OF THE THINGS THAT IS
HAPPENING IS WE ARE SORT OF
PROGRESSING AS WE GO THROUGH THE
DESIGN OF -- ESPECIALLY ON NEW
BUILDINGS.

OVER THE YEARS, OUR GOAL HAS
BEEN -- THE MANDATE HAS BEEN TO
ACHIEVE LEAD SILVER OR BETTER.

IF I LOOK AT A COUPLE OF RECENT
EXAMPLES, THE BOLLING BUILDING
IN DUDLEY SQUARE, THAT ACHIEVES
LEAD GOLD, THE NEW DEARBORN
S.T.E.M. ACADEMY IS TRACKING
LEAD GOLD, AND THERE ARE SEVERAL
GREAT ENERGY SAVINGS AND
TECHNOLOGIES BUILT INTO THAT
SCHOOL, BUT MOST RECENTLY WE ARE
COMPLETING THE DESIGN OF THE NEW
BOSTON ARTS ACADEMY.

WE'RE SORT OF TAKING THAT ONE

STEP FURTHER.

WE'RE BUILDING THINGS IN HIGH EFFICIENCY BUILDING ENVELOPES THAT ALLOW US TO INSTALL MAYBE SMALLER HVAC SYSTEMS THAT USE LESS ENERGY TO PROVIDE BETTER ACOUSTICS IN A BUILDING THAT ALLOW US TO BE MUCH MORE EFFICIENT WITH OUR HEATING AND COOLING.

THOSE SYSTEMS IN THAT PARTICULAR BUILDING ARE BEING INSTALLED AS ALL ELECTRIC FOR THE HVAC SYSTEMS SO AS WE MOVE DOWN THE ROAD TOWARD THE 2050 CARBON NEUTRAL, WE'RE SETTING OURSELVES UP TO SORT OF MEET THOSE GOALS.

>> JUST TO BE CLEAR ABOUT THAT, NOT TO GET TOO WONKY AND IN THE WEEDS, ALTHOUGH I THINK WE'RE GOING TO HEAR FROM SOME PRETTY WONKY --

>> WE'RE GETTING IN THE WEEDS ALREADY.

>> SO THAT'S EXCITING.

BUT A RELATIVELY MORE FULLY ELECTRIFIED SYSTEM, THAT'S WHEN WE'LL SEE THE DROP IN CARBON EMISSIONS.

THE BOSTON ARTS ACADEMY POSITIONS THAT BUILDING WELL TO INCREASE ITS CARBON -- I MEAN TO REDUCE ITS CARBON EMISSIONS PROFILE AS IT MOVES FORTH.

>> AND SAVE MONEY.

THE ENERGY COSTS WITH A HEAT PUMP SYSTEM CAN BE DECREASED BY AS MUCH AS 40%.

>> THIS IS THE EXCITING PART.

WE'RE VERY EXCITED ABOUT THE UPDATE TO THE CLIMATE ACTION PLAN UPDATE.

THE INPUT FROM THE CITY DEPARTMENTS AND THE INTERNAL STAKEHOLDERS, WE LOOK FORWARD TO HAVING DISCUSSIONS THROUGHOUT THIS UPDATE BECAUSE THE CITY IS IN A VERY UNIQUE POSITION.

A LOT OF THE ARGUMENTS THAT YOU SOMETIMES HEAR FROM THE DEVELOPMENT COMMUNITY AND THE CITY OF BOSTON HAS TO DO WITH THE COST, THE INCREMENTAL COST OF ACTUALLY ADDING CARBON

NEUTRALITY GOALS INTO THE
CONSTRUCTION MIX.

THE CITY IS IN THE VERY UNIQUE
POSITION THAT IT IS HIGHLY
UNLIKELY THAT A CITY WOULD
ACTUALLY GET RID OF THE BUILDING
ITSELF.

IT CERTAINLY WOULD NOT FLIP IT
OR CHANGE ITS USE.

POLICE STATIONS GENERALLY STAY
POLICE STATIONS.

SCHOOLS GENERALLY STAY SCHOOLS.

ESPECIALLY ANY BUILDING THAT
WOULD BE NEW IN THE CITY, SO THE
CITY IS ALMOST UNIQUELY
POSITIONED TO RECEIVE ALL THE
BENEFITS OF THE ENERGY SAVINGS
OVER TIME THEORETICALLY TO MAKE
THE CAPITAL COSTS PAY FOR
THEMSELVES.

THE REASON WE SAY THEORETICALLY
IS ACCORDING TO THE GREEN
BUILDING COUNCIL THERE'S STILL
AN ADDING COST TO BUILDING
BUILDINGS THAT ARE CERTAINLY
ZERO-NET-ENERGY BUT ALSO
ZERO-NET-CARBON.

THERE WAS A UNIVERSITY OF
VERMONT REPORT THAT HAD AS HIGH
AS 20%.

THE GREEN BUILDING COUNCIL HAS
IT MORE IN THE 16% RANGE.

THOSE COSTS ARE IMPORTANT
BECAUSE WHAT YOU HAVE TO BUILD
INTO THE CAPITAL CYCLE IS THAT
THOSE COSTS DON'T COME AT THE
COST OF PROGRAM ON SOMETHING
LIKE A SCHOOL.

YOU LOOK AT THINGS LIKE SCHOOL
KITCHENS.

IT SHOULD NEVER BE AN EITHER OR,
AND IT DOESN'T HAVE TO BE AS
LONG AS YOU BUILD IT INTO THE
CAPITAL BUDGET FROM THE GET-GO.

>> JUST FOLKS WATCHING HAVE TO
UNDERSTAND WE TALK ABOUT TWO
DIFFERENT BUDGETS IN THAT CASE.

WE HAVE A CAPITAL BUDGET WE VOTE
ON.

WE HAVE THE CITY'S OPERATING
BUDGET.

I GUESS THREE.

THEN BPS, WHICH IS ITS OWN
SEPARATE BUDGET.

YOUR POINT IS WELL TAKEN.
WE'RE GOING TO HEAR FROM OUR
SECOND PANEL ABOUT THE COSTS,
INCLUDING THE BOSTON FREE CARBON
REPORT.

WE ARE GOING TO CONTINUE TO PUSH
THIS AND ARGUE THAT IT MAKES
BEST FINANCIAL STEWARDSHIP.

I WANT TO GET TO MY COLLEAGUES.

WE'VE ALSO BEEN JOINED BY CITY
COUNCILOR FRANK BAKER AND ED
FLYNN.

WELCOME, GENTLEMEN.

HOW MANY MUNICIPAL BUILDINGS DO
WE CURRENTLY HAVE IN THE
PIPELINE FOR CONSTRUCTION WOULD
YOU SAY, TRISHA, BALLPARK?
FROM SCHOOLS TO COMMUNITY
CENTERS TO HOUSING DEVELOPMENTS.

>> I CAN'T SPEAK TO THE WHOLE
FIVE-YEAR CAPITAL PLAN OFF THE
TOP OF MY HEAD UNFORTUNATELY.
WE'VE PROBABLY GOT ABOUT, OH, 60
OR 70 IN THE PIPELINE BETWEEN
DESIGN AND CONSTRUCTION AT
PUBLIC FACILITIES NOW.

I WOULD SAY PROBABLY OVER THE
NEXT FIVE YEARS THERE'S PROBABLY
TRIPLE THAT.

>> 60 TO 70 NOW --

>> I'M SORT OF SPEAKING --

>> DOES THAT INCLUDE WHEN YOU
HAVE -- I THINK YOU WERE WITH US
AND THE MAYOR LAST WEEK.

IT IS GOING TO BE SORT OF A
HYBRID CITY BUILDING WITH
SUPPORT FROM JPNBC.

IS THAT INCLUDED IN OUR
MUNICIPAL PORTFOLIO?

>> I'M SORRY.

I'M NOT FAMILIAR WITH THE
ADDRESS.

>> IT'S IN JAMAICA PLAIN.

>> I'M SORRY.

>> THAT'S NOT INCLUDED.

I DON'T THINK THEY'RE QUITE MVC
YET, BUT THEY'VE ALREADY BEGUN
SOME OF THE WORK.

ARE WE ALL UP TO DATE ON OUR THE
BOSTON DISCLOSURE ORDINANCE FOR
OUR MUNICIPAL BUILDINGS?

>> THAT'S AN EXCELLENT QUESTION.
DO YOU KNOW THE ANSWER TO THAT?
WE CAN GET BACK TO YOU.

>> WE CAN GET BACK TO YOU ON THAT.
MUNICIPAL BUILDINGS DO REPORT TO BIRDO.

>> IT DOESN'T PREDATE YOU, CHRIS, BUT YOU WERE IN A VERY DIFFERENT ROLE THEN.

>> ALISON HAS TOLD ME YES, WE HAVE RESPONDED.

>> THANK YOU, ALISON.
IT'S NOT CHEATING.

IT'S A LIFELINE ON "WHO WANTS TO BE A MILLIONAIRE."

ALISON WOULD BE THE ONE I WOULD WANT TO CALL.

THAT INFORMATION WOULD BE HELPFUL BECAUSE I GUESS --

>> WE ABSOLUTELY PROVIDE THAT. IT'S AN IMPORTANT DISTINCTION ABOUT WHAT'S IN THE PIPELINE FOR NEW CONSTRUCTION AS OPPOSED TO RETROFITS.

>> IN THE CARBON FREE BOSTON REPORT -- I KNOW IT WAS YOUR DEPARTMENT, CHIEF, WORKING IN CONCERT WITH ACADEMICS AND RESEARCHERS AND OTHERS -- IT NOTES DEEP ENERGY RETROFITS -- I'M READING ALMOST VERBATIM FROM IT.

ALL NEW CONSTRUCTION MEETS HIGH PERFORMANCE STANDARDS CARBON NEUTRALLY WILL REQUIRE DEEP ENERGY RETROFITS TO BETWEEN 2,000 AND 3,000 BUILDINGS EACH YEAR.

IS THAT INCLUDING THIS YEAR?

>> WE WOULD NEED TO START THIS YEAR.

THERE'S 86,000 BUILDINGS IN BOSTON.

NEARLY ALL OF THEM HAVE FOSSIL FUELS COMING INTO THEM.

>> YEAH.

>> THAT CAN BE DAUNTING.

WE CAN LOOK AT THAT AS WHAT IT IS, WHICH IS A HUGE CHALLENGE, OR THE FLIP SIDE IS WE CAN LOOK AT IT AS THIS IS A HUGE OPPORTUNITY.

THIS IS THE BEST JOBS PROGRAM THAT THE UNITED STATES OF AMERICA HAS EVER SEEN.

>> AGREED.

>> THERE'S A HUGE MARKET.
THE VERY SIMPLE EQUATION IS WHEN
YOU HAVE TO PUT THE HVAC SYSTEM
ON THE ROOF, IT IS A GOOD
OPPORTUNITY TO ELECTRIFY THE
SYSTEM ON THE ROOF AND MAKE SURE
THERE'S AS MUCH RENEWABLE ENERGY
ON THAT BILLING AS POSSIBLE.
THERE'S AN EXCITING NEW PROGRAM
COMING IN OUR DEPARTMENT IN
NEIGHBORHOOD DEVELOPMENT RIGHT
NOW.

>> I JUST WANTED TO GIVE A QUICK
SHOUT-OUT TO THE DEPARTMENT OF
NEIGHBORHOOD DEVELOPMENT.
THEY'VE BEEN WORKING ON AN
ENERGY POSITIVE NEW GREEN
BUILDING PROGRAM.
THROUGH THAT PROGRAM, THEY HAVE
ACTUALLY BEEN BUILDING MARKET
RATE AND AFFORDABLE HOUSING ON
CITY-OWNED LAND.

THERE'S ABOUT 100 UNITS THAT
HAVE EITHER BEEN BUILT OR IN THE
PIPELINE.

THAT'S A REALLY EXCITING PROGRAM
WHERE THEY'RE PILOTING
ENERGY-POSITIVE DEVELOPMENT,
WHERE THEY'RE CHALLENGING LOCAL
DEVELOPERS AND ARCHITECTS TO TRY
THESE NEW TECHNOLOGIES.

>> AS DAUNTING AS THE 2,000 TO
3,000 RETROFITS ARE, THE BEST
WAY TO GET AHEAD OF THAT IS TO
BE SURE ALL NEW CONSTRUCTION ARE
ENERGY POSITIVE.

THAT'S THE WAY WE CAN LOAD UP ON
THE WORK NOW.
COUNCILOR WU?

>> THANK YOU, MR. CHAIRMAN.
HELLO, EVERYONE.

THANK YOU FOR EVERYTHING THAT
YOU DO DAY-TO-DAY.

JUST TO FOLLOW UP A LITTLE BIT,
MAYBE TO BACK UP ONE STEP FIRST
AND TO JUST UNDERSTAND, BECAUSE
WE'RE TALKING ABOUT DIFFERENT
KIND OF METRICS FOR SUCCESS.
WE'RE TALKING ABOUT CARBON
NEUTRALITY, ET CETERA, ET
CETERA.

YOU MENTIONED THE DEARBORN IS
LEAD GOLD --
>> TRACKING.

>> TRACKING TO LEAD GOLD EVEN IF IT IS NOT CERTIFIED AT THE END. I WAS JUST QUICKLY GOOGLING. THERE'S A LEAD ZERO CERTIFICATION THAT WOULD BE MORE OF THE CARBON FREE CERTIFICATION THAT WE'RE TALKING ABOUT. IS THAT CORRECT?

>> IT'S A STANDARD THAT JUST CAME OUT A COUPLE MONTHS AGO, SO WE'RE LOOKING INTO THAT AND SEEING HOW THAT COULD WORK INTO OUR NEW REQUIREMENTS, BUT IT IS VERY NEW.

>> THAT'S THE STANDARD FOR THIS HEARING ORDER IN TERMS OF NET ZERO REQUIREMENTS.

HOW MUCH AN ADDITIONAL LIST IS IT TO GET FROM CERTIFIABLE LEAD GOLD TO --

>> IT'S AN INTERESTING QUESTION, COUNCILOR.

IF YOU'RE TALKING ABOUT A SPECIFIC BUILDING, UNFORTUNATELY, THE ANSWER IS IT DEPENDS.

THAT'S A VERY BUREAUCRATIC ANSWER UNFORTUNATELY, BUT EVERY BUILDING GETS TO LEAD CERTIFICATION IN A DIFFERENT WAY.

HUMBLY -- AND I HAVEN'T SPENT TIME WITH THE LEAD ZERO REQUIREMENTS -- THAT'S GOING TO BE VERY SPECIFIC TO CARBON EMISSIONS, BUT WE HAVE TO LOOK AT IT THROUGH THE ARTICLE 37 UPDATE.

WE COULD POTENTIALLY LOOK AT A BUILDING LIKE THE DEARBORN AND GET THAT ANSWER BACK TO YOU.

WE DO HAVE THE GENERAL NUMBERS AGAIN FROM THE GREEN BUILDING COUNCIL ABOUT THE ADDITIONALTY OF ADDING ZERO CARBON REQUIREMENTS ONTO BUILDINGS, BUT SO MANY BUILDINGS' PORTFOLIOS ARE DIFFERENT BECAUSE OF USAGE BUT ALSO BECAUSE OF WHERE THEY'RE SITUATED.

SOME ARE BETTER CANDIDATES FOR SOLAR.

THAT'S WHERE DESIGN REALLY HAS TO DRIVE A LOT OF THIS.

>> TO CLARIFY, CHIEF COOK WAS MENTIONING A REPORT THAT WILL BE COMING OUT FROM THE U.S. GREEN BUILDING COUNCIL TALKING ABOUT THE ADDITIONAL INCREMENTAL COSTS OF MAKING BUILDINGS EITHER NET-ZERO READY WHERE SYSTEMS WOULD BE ELECTRIFIED THEY WOULD BE CARBON NEUTRAL OR MAKING THE COST OF THOSE BUILDINGS ZERO-NET CARBON.

THAT REPORT HASN'T BEEN RELEASED YET, BUT WE CAN GET BACK TO YOU ON THAT.

>> TO COUNCILOR O'MALLEY'S EARLIER POINT, THEORETICALLY, ESPECIALLY WITH ENERGY SAVINGS, OVER TIME ENERGY SAVINGS, IF CAPITALIZED PROPERLY, COULD PAY FOR THEMSELVES.

>> OKAY.

IT AT LEAST APPEARS -- THERE ALREADY IS SOMEONE ELSE -- BECAUSE IT SOUNDS LIKE WE ARE ALREADY IN TERMS OF FACILITIES THINKING ABOUT COMPARISON TO LEAD AS CERTAIN REACHING -- THE LEAD GOLD STANDARDS ARE IN CONSIDERATION IF NOT TARGETS AS THE CITY IS THINKING ABOUT PROJECTS RIGHT NOW, EVEN IF YOU DON'T GO FOR THE FULL CERTIFICATION, BUT BASICALLY GETTING THE BUILDINGS UP TO THE POINT WHERE THEY WOULD MATCH OR MEET THOSE REQUIREMENTS.

>> FOR NEW BUILDINGS, YES.

OUR MANDATE IS LEAD SILVER AS A MINIMUM.

OUR GOAL IS TO EXCEED THAT.

IN TERMS OF LEAD ZERO, WE STILL HAVE OBVIOUSLY SOME MORE TO DO WITH OUR PARTNERS HERE TO UNDERSTAND REALLY WHAT THAT IS. AS YOU KNOW, WHEN WE BUILD A NEW BUILDING AND WE APPLY FOR LEAD, WE APPLY FOR LEAD SORT OF EARLY ON IN THE DESIGN PROCESS.

AS WE ARE BUILDING A PROJECT, WE MAY BE BUILDING IT UNDER ONE ITERATION OF LEAD.

IN THE MEANTIME, MORE AND MORE ITERATIONS OF LEAD CONTINUE TO COME OUT.

WHERE OUR PROJECTS ARE
PROGRESSING AS LEAD PROGRESSIVES
AS WELL.

>> COUNCILOR, I KNOW YOU KNOW
THIS POINT, BUT OBVIOUSLY, THE
BIG CHALLENGE HERE IS WHETHER OR
NOT WE WOULD HAVE TO BE VERY
SPECIFIC AND INTENTIONAL IN OUR
ARTICLE 37 URDATE AND CLIMATE
ACTION PLAN UPDATE TO TALK
SPECIFICALLY ABOUT CARBON
NEUTRALITY IN BUILDINGS BECAUSE
WHEN YOU LOOK AT THE EXISTING
LEAD CERTIFICATIONS OF GOLD AND
SILVER THERE ARE OTHER QUALITY
OF LIFE MEASURES THAT ARE VERY
IMPORTANT IN THAT THERE ARE
THINGS THAT ARE ABSOLUTELY
INTEGRAL INTO BUILDING A HEALTHY
AND EQUITABLE BUILDINGS, THINGS
LIKE AIR QUALITY.

THERE'S POINTS YOU CAN RECEIVE
FOR THE TYPES OF TRANSPORTATION,
THE TYPE OF BUILDING ENVELOPE
THAT YOU HAVE.

THERE ARE THINGS THAT MAY NOT
DIRECTLY DEAL WITH CARBON
EMISSIONS.

>> OKAY.

IS THERE A TIMELINE FOR KIND OF
ANALYZING THE LEAD ZERO NEW
STANDARD UNDER --

>> YEAH, THAT'S PART OF THE
CONVERSATION WE'RE HAVING FOR
THE CLIMATE ACTION PLAN UPDATE.
WE HAVE BEEN CONVENING A WORKING
GROUP COMPROMISED OF KEY
STAKEHOLDERS AND COMMUNITY
GROUPS.

IN THE BUILDING SECTOR, WE HAVE
REPRESENTATIVES FROM TRADE
UNIONS, DEVELOPERS, ARCHITECTS,
UTILITIES, AS WELL AS COMMUNITY
GROUPS.

>> THAT'S GOING TO BE DONE THIS
FALL?

>> SUMMER/FALL.

>> OKAY.

>> WE'RE CONVENING A WORKING
GROUP, AND IT IS TALKING ABOUT
STRATEGIES THAT WE NEED TO
ACCELERATE AS A COMMUNITY.
PART OF THAT IS GETTING SOME OF
THESE EXPERTS IN THE ROOM THAT

CAN SPEAK TO THE RIGHT BUILDING STANDARDS WHEN WE'RE TALKING ABOUT ZERO-NET-CARBON CONSTRUCTION.

YOU HAVE OTHER STANDARDS LIKE LEAD ZERO, WHICH IS SOMETHING NEW.

WHAT WE'RE DOING AS A COMMUNITY THROUGH THE WORKING GROUP IS TALKING ABOUT, OKAY, IF OUR STRATEGY IS TO UPDATE ARTICLE 37 SO THAT WE CAN REACH A ZERO-NET CARBON STANDARD, WHAT DOES THAT LOOK LIKE AND WHAT IS THE PROCESS TO GET TO THAT POINT.

>> JUST TO BACK UP.

THIS IS SUPER BASIC.

I APOLOGIZE.

TRISHA, WHEN YOU SAID THE MANDATE IS FOR LEAD SILVER, THAT IS IN ARTICLE 37 OR WHAT DO YOU MEAN?

>> THERE WAS A MUNICIPAL -- SORRY.

>> I WAS GOING TO SAY A CITY ORDINANCE.

>> THERE'S AN EXISTING ORDINANCE REQUIRING NEW BUILDINGS TO BE LEAD SILVER.

>> NEW BUILDINGS AND MAJOR RENOVATIONS

>> OF CITY PROPERTY?

>> CORRECT.

>> WHEN WAS THAT PASSED?

>> MY GUESS IS TEN YEARS AGO.

>> OKAY.

>> OKAY.

>> WE'RE TALKING ABOUT AN AMENDMENT THEN AT THIS POINT.

>> WE'RE HAPPY TO PROVIDE THAT ORDINANCE TO THE COUNCIL.

>> THANK YOU.

JUST TO PUT A FINER POINT ON COUNCILOR O'MALLEY'S EARLIER QUESTION, YOU MENTIONED 60 TO 70 PROJECTS IN THE PIPELINE, BUT IN TERMS OF GROUND-UP BUILDINGS, IT'S NOT --

>> IT'S MUCH FEWER.

SCHOOLS, IT WOULD BE THE BOSTON ARTS ACADEMY.

THERE'S A NEW EAST BOSTON POLICE

STATION.

>> I HEARD THERE WAS SOME SINCE THAT WE NEED TO WAIT AND KIND OF TIE WITH OTHER INITIATIVES OR PLANT PROCESSES OR PLANS, BUT MANY OF THE DECISIONS ABOUT HOW THESE BUILDINGS ARE GOING TO TURN OUT IN THE NEXT FIVE YEARS ALREADY HAVE BEEN MADE OR ARE BEING MADE NOW.

I'M SENSING SOME URGENCY JUST TO MAKE SURE THAT WE ARE NOT MISSING HUGE ENTIRE OPPORTUNITIES THAT ARE FEW AND FAR BETWEEN AS THEY COME UP THAT WILL THEN BE THERE.

A NEW POLICE STATION WILL BE THERE FOR WHO KNOWS HOW LONG. WHAT IS THE GENERAL -- WHAT KIND OF LIFE CYCLE ARE YOU BUILDING THAT POLICE STATION FOR?

>> A TYPICAL PROJECT WILL TAKE THREE TO FIVE YEARS.

>> HOW LONG WILL IT BE THERE, DO YOU THINK?

>> AFTER IT IS BUILT, 50 OR MORE YEARS.

>> OKAY.

SO THINKING ABOUT THAT SCALE OF IMPACT WITH THE DECISIONS THAT WE'RE MAKING NOW AND THE STANDARDS THAT WE'RE SETTING, I IMAGINE THAT PART OF THE MOTIVATION BEHIND THAT ORDINANCE THAT WAS PASSED PROBABLY TEN YEARS AGO AROUND LEAD SILVER WAS ALSO THIS KIND OF IF WE'RE GOING TO ASK THE PRIVATE SECTOR TO HELP US MEET OUR GOALS, WE HAVE TO BE THE ONES LEADING AS WELL. YOU WOULD AGREE THAT THAT'S KIND OF STILL THE MIND-SET?

>> NO, IT IS.

THAT'S WHERE WE HAVE SOME REAL OPPORTUNITIES, ESPECIALLY WHILE WE'RE IN THE EARLY MASTER PLANNING STAGES OF SOME OF OUR CAMPUSES.

WHEN YOU START LOOKING AT SOMETHING LIKE THE FRANKLIN PARK YARD -- JUST TO BE CLEAR, THAT'S NOT FRANKLIN PARK PROPER, WHICH IS GOING THROUGH A DIFFERENT MASTER PLAN PROCESS.

THAT'S THE PUBLIC SIDE-FACING OF

FRANKLIN PARK.

WE HAVE A SMALL CAMPUS THERE
THAT HAS GONE THROUGH A RECENT
MASTER PLAN THAT'S A PROGRAM
EXERCISE.

THERE'S 140 OR SO MUNICIPAL
WORKERS THAT REPORT THERE EVERY
DAY.

ONSITE, WE HAVE INCREDIBLY
INEFFICIENT BUILDINGS THAT ARE
BEAUTIFUL.

THERE'S OPPORTUNITIES FOR
RETROFITS.

THEN THERE'S OPPORTUNITIES FOR
THINGS LIKE A GREENHOUSE THAT
COULD ACTUALLY BE TOTALLY HEATED
THROUGH JUST THE COMPOST THAT WE
ACTUALLY GENERATE ON SITE AT THE
PARK.

I THINK THE NEW OPPORTUNITIES
FOR THE NEW CONSTRUCTIONS ARE
THE OPPORTUNITIES THAT IS STILL
IN THAT MASTER PLANNING STAGES.
ONCE SOMETHING IS IN THE LIFE
CYCLE, WE NEED RENEWABLE ENERGY.

>> WE'RE AIMING FOR THE 50% BY
2030 GOAL.

THE QUESTION IS, ARE WE GOING TO
HIT THAT GOAL?

AND WHAT SCALE OF CHANGE -- IF
YOU CAN DESCRIBE WHAT SCALE OF
CHANGE IS NECESSARY FOR US TO
GET THERE.

>> PARTICULARLY AROUND MUNICIPAL
BUILDINGS I THINK IS TOUGHER.
I'LL LET KAT START TO ANSWER
THAT QUESTION BECAUSE SHE'S
GOTTEN MORE ABOUT OUR GREENHOUSE
EMISSIONS THAN I'LL EVER
REMEMBER OR HOWEVER THAT PHRASE
IS SUPPOSED TO GO, BUT I HAVE A
CAVEAT TO ADD AT THE END OF IT.

>> FOR MUNICIPAL BUILDINGS IN
PARTICULAR, I THINK IT'S ABOUT
THE WORK OF THE "RENEW BOSTON
TRUST," SO ENGAGING IN THE
ENERGY EFFICIENCY MEASURES AND
THE FUNDING THAT'S BEEN
DEVELOPED THROUGH CONTRACTING,
THAT'S THE TERM OF ART WE USE TO
DESCRIBE THAT SORT OF FINANCIAL
MECHANISM FOR ENGAGING IN THESE
RETROFITS.

THAT'S GOING TO PLAY A HUGE ROLE

IN TERMS OF ALLOWING THE CITY TO BORROW ENOUGH MONEY AND UNDERWRITE MORE TO BE ABLE SPEND MORE ON OUR OWN BUILDINGS.

>> JUST TO CLARIFY MY QUESTION. WE HAVE A SPECIFIC NUMERICAL GOAL WE NEED TO HIT BY 2030, AND WE HAVE A PLAN NOW THAT I IMAGINE HAS CERTAIN LEVELS OF DETAIL THAT GO BEYOND WHAT WAS EVEN PUBLICLY AVAILABLE OF WHERE ARE ALL THE LEVERS OR HOW MUCH DO WE NEED TO BE PUSHING THEM UP OR DOWN TO GET THERE.

BY 2030, WHAT PERCENTAGE -- REDUCE THE CARBON FOOTPRINT OF MUNICIPAL BUILDINGS.

>> WE DIDN'T SPECIFICALLY LOOK AT MUNICIPAL BUILDINGS. THEY IDENTIFIED IT AS AN OPTION. THE FULL TECHNICAL REPORT HASN'T BEEN RELEASED YET.

>> WHEN WILL THAT COME OUT?

>> THE LAST I HEARD FROM THE TEAM AT THE BOSTON UNIVERSITY AND THE GREEN RIBBON COMMISSION IS IT IS EXPECTED TO BE RELEASED AT THE END OF APRIL/EARLY MAY.

>> DO YOU THINK THAT WILL INCLUDE A GOAL OF OUR MUNICIPAL BUILDINGS NEED TO HAVE THIS PERCENTAGE FOOTPRINT BY 2030?

>> NO, I DON'T THINK SO. THIS IS THE PART WHERE I GO TO THE CAVEAT.

THE FIRST PART OF YOUR QUESTION, TO ANSWER IT GENERALLY, WE'RE TRACKING AHEAD OF OUR GOALS. UNFORTUNATELY, THE REALLY DIFFICULT WORK IS STILL AHEAD OF US.

THAT'S SORT OF THE ISSUE. THE ISSUE OF BUILDINGS AND CONTRIBUTING TO \$70 -- AND MOST OF THOSE BUILDINGS ARE REALLY BUILT.

I DON'T MEAN TO MINIMIZE THE HERCULEAN EFFORT THAT THE ADVOCATES HAVE MADE. IN A LOT OF WAYS, WE ACTUALLY RIDE THEIR CLEAN ENERGY GOALS TO OUR PATH TO CARBON NEUTRALITY. THE ISSUE IS THE SECTORS THAT ARE LEFT ARE VERY DIFFICULT, AND

THEY'RE BUILDING AND
TRANSPORTATION.

A LOT OF THE TRANSPORTATION IS
OUT OF OUR CONTROL AND IS GOING
TO REQUIRE REGIONAL APPROACH TO
GET PEOPLE WHO ARE DRIVING IN
FROM 495 IN OUT OF THEIR CARS OR
AT LEAST INTO ELECTRIC CARS.

>> I HAVE A PLAN.

>> GOOD.

WE'LL LOOK FORWARD TO IT, BUT
THE BUILDING SECTOR, THERE'S
STILL A LOT OF WORK LEFT.
AND SO IT'S A LITTLE DISTRACTING
THAT WE'RE TRACKING SO WELL
RIGHT NOW ON OUR PATH BECAUSE
THE REALLY DIFFICULT WORK IS
STILL AHEAD OF US.

>> AND I THINK IT JUST FEELS
THAT IT WOULD BE -- I DON'T WANT
TO USE THE WORD IRRESPONSIBLE,
BUT WE WOULD NOT BE HOLDING
OURSELVES FULLY ACCOUNTABLE IF
WE DO NOT HAVE A SPECIFIC GOAL
FOR MUNICIPAL BUILDINGS AND THE
CARBON FOOTPRINT THERE BECAUSE
THAT IS FULLY IN OUR CONTROL,
AND THAT SETS THE TONE FOR ANY
OTHER ENTITY THAT OWNS A
BUILDING.

>> THERE IS NO SCENARIO WHERE
THERE'S NOT A TARGET GOAL FOR
MUNICIPAL BUILDINGS OUT OF THE
CLIMATE ACTION PLAN OBVIOUSLY.

>> GREAT.

THANK YOU.

>> THANK YOU, COUNCILOR WU.
I WANTED TO THANK COUNCILOR
FLYNN.

HE IS GOING TO DEFER.

WE'RE GOING TO GET TO HIS
QUESTIONS NEXT.

I'M GOING TO ASK THIS PANEL TO
STAY.

HE'S OUR ENERGY PLANNER FOR THE
CITY OF CAMBRIDGE.

HE HAS A HARD DEADLINE.

HE HAS TO LEAVE BY 3:00.

THANK YOU, SETH.

>> THANKS FOR INVITING ME HERE
TODAY.

LOOKS LIKE WORKING ON PULLING UP
THE PRESENTATION.

AGAIN, I WORK FOR THE CITY OF

CAMBRIDGE COMMUNITY DEVELOPMENT
DEPARTMENT WHERE I'M AN ENERGY
PLANNER.

I'M RESPONSIBLE FOR OVERSEEING
THE CAMBRIDGE NET ZERO ACTION
PLAN.

I'M GOING TO GIVE A REALLY BRIEF
PRESENTATION OF A PLAN AND HOW
IT AFFECTS MUNICIPAL BUILDINGS
IN CAMBRIDGE.

THEN I WOULD BE HAPPY TO ANSWER
ANY QUESTIONS FROM THAT.

CAMBRIDGE, LIKE BOSTON, IS
COMMITTED TO ACHIEVING CARBON
NEUTRALITY BY 2050.

THE MAJORITY OF OUR CARBON GAS
EMISSIONS ARE FROM OUR
BUILDINGS.

IN CAMBRIDGE, IT IS 80%.

IN 2015, THE CAMBRIDGE CITY
COUNCIL ADOPTED THE NET-ZERO
ACTION PLAN TO LAY OUT THAT PATH
FOR A TWO PHASING OUT OF
GREENHOUSE GAS EMISSIONS FROM
MUNICIPAL AND PRIVATE BUILDINGS.
IN CAMBRIDGE, WE DEFINE NET-ZERO
SIMILARLY TO THE NET-ZERO-CARBON
DEFINITION THAT'S BEEN DISCUSSED
HERE.

BUILDING IT TO HAVE AN ANNUAL
BALANCE OF GREENHOUSE GAS
EMISSIONS FROM ITS ENERGY
CONSUMPTION AND ENERGY
PRODUCTION OVER TIME.

THIS IS DIFFERENT THAN NET-ZERO
ENERGY, SO IT ALLOWS FOR OFFSITE
USE OF RENEWABLE ENERGY
TECHNOLOGIES, SO IMPORTANT TO
MAKE THAT DISTINCT.

THERE ARE FIVE MAJOR COMPONENTS
OF THE NET-ZERO ACTION PLAN.
THESE COMPONENTS REALLY FOCUS ON
EXISTING BUILDINGS, NEW
BUILDINGS, AND THEN THE
RENEWABLE ENERGY SUPPLY FOR
CAMBRIDGE.

I'LL BE SPEAKING FOR THE REST OF
THE TIME ABOUT NEW BUILDINGS IN
CAMBRIDGE.

THE PLAN REALLY CAME OUT OF
CONCERN AROUND THE NEW BUILDING
DEVELOPMENT IN CAMBRIDGE, AND SO
WE LAID OUT WITH THE
STAKEHOLDERS WHO WROTE THE PLAN

A TIMELINE OVER WHICH WE WOULD TARGET ACHIEVING NET-ZERO EMISSIONS IN THOSE NEW BUILDING SECTORS OVER TIME.

I APOLOGIZE THAT THIS IS A LITTLE SMALL.

WE START WITH MUNICIPAL BUILDINGS IN 2020, WITH SMALL RESIDENTIAL ONE TO THREE-UNIT BUILDINGS IN 2022, IN 2025, WE BRING IN LARGER MULTI-FAMILY BUILDINGS, COMMERCIAL BUILDINGS, INSTITUTIONAL BUILDINGS.

THEN LABS ARE IN 2030, ACKNOWLEDGING THE PARTICULARLY COMPLICATED TECHNICAL NATURE OF LABS.

WE'RE COMMITTED TO CONDUCTING A TECHNICAL AND ECONOMIC FEASIBILITY ASSESSMENT IN THE YEARS LEADING UP TO ADOPTION OF THE REQUIREMENTS IN THE CAMBRIDGE ZONING AS THE CASE MAY BE.

WE'RE STARTING THAT PROCESS NOW OR IN THIS COMING YEAR FOR THOSE RESIDENTIAL BUILDINGS THAT WOULD BE SUBJECT TO THE REQUIREMENTS IN 2022.

FOR MUNICIPAL BUILDINGS, WE HAVE A PHASED APPROACH TO NEW MUNICIPAL BUILDINGS AND THE STANDARDS THAT APPLY TO THOSE BUILDINGS.

UPON ADOPTION OF THE PLAN, WE BEGAN TO TARGET NET-ZERO-READY MUNICIPAL BUILDINGS, AND THE DEFINITION OF THAT IS HERE.

IT IS A BUILDING THAT HAS BASICALLY VERY LOW ENERGY USE AND IS DESIGNED IN A WAY THAT IT CAN ACCOMMODATE RENEWABLE ENERGY SUPPLY IN THE FUTURE.

AND THE REALLY SIMPLE WAY THAT WE DEFINE THIS IN CAMBRIDGE IS A BUILDING THAT'S FOSSIL FUEL FREE, SO IT IS A BUILDING THAT IS NOT USING ANY FOSSIL FUEL ON SITE.

THE ELECTRICITY IT IS CONSUMING SWITCHES OVER TO 100% RENEWABLE ENERGY, SO THAT BUILDING WOULD ACHIEVE NET-ZERO EMISSIONS.

THE MARTIN LUTHER KING SCHOOL

WHICH OPENED IN 2015 WAS OUR FIRST ATTEMPT AT WORKING TOWARDS NET-ZERO.

THIS BUILDING IS NOT 100% FOSSIL FUEL FREE.

IT HAS A VERY SMALL AMOUNT OF GAS ON SITE, BUT IT IS THE HIGHEST LEAD RATED SCHOOL IN THE COUNTRY.

IT HAS A VERY LOW EY. EVERY INCH OF THE ROOF IS COVERED IN SOLAR, WHICH MEETS 50% OF THE BUILDINGS'S ELECTRICITY NEEDS.

A SMALLER BUILDING IS OUR RECENTLY OPENED COMMUNITY SHELTER AVENUE ON MASSACHUSETTS SQUARE.

YOU CAN SEE THE SOLAR PANELS. BOTH THIS AND THE MARTIN LUTHER KING SCHOOL UTILIZE GROUND SOURCE HEAT PUMPS TO PROVIDE THE HEATING AND COOLING FOR THE BUILDING.

THEN OUR CURRENT PROJECT THAT WE'RE WORKING ON IS THE KING OPEN SCHOOL COMPLEX.

THIS IS ALSO GOING TO BE FOSSIL FUEL FREE.

THIS LEADS US INTO THE 2020 COMMITMENT TO ACHIEVING NET-ZERO EMISSIONS IN MUNICIPAL BUILDINGS.

AGAIN, THE WAY THAT WE ANTICIPATE ACHIEVING THAT COMMITMENT IS BY BUILDING BUILDINGS THAT ARE FOSSIL FUEL FREE AND THEN REQUIRING THE AMOUNT OF RENEWABLE ENERGY TO POWER -- TO MEET 100% OF THOSE BUILDINGS' ELECTRICITY DEMAND.

THIS BUILDING WILL HAVE A SIGNIFICANT AMOUNT OF SOLAR ON. WE'RE IN THE PROCESS OF RESEARCHING PATHWAYS TO PROCURE THAT OFFSITE ENERGY TO MEET THE BUILDING'S DEMAND.

WE HAVE A STRATEGY FOR THE RENEWAL OF OUR BUILDINGS. LIKE BOSTON AND THE AREA AS A WHOLE, THERE ARE MANY MORE EXISTING MUNICIPAL BUILDINGS IN CAMBRIDGE THAN THERE ARE NEW BUILDINGS SO WE ADOPTED A

MUNICIPAL FACILITIES IMPROVEMENT
PLAN, WHICH IS A FIVE-YEAR
TRAJECTORY -- A FIVE-YEAR
COMMITMENT TO RETROFITTING
BUILDINGS OVER TIME.

AS PART OF THAT PROCESS, WE
ADOPTED A 2020 GREENHOUSE GAS
EMISSION PORTFOLIO.

THAT'S THE QUICK OVERVIEW.

I WOULD BE HAPPY TO ANSWER ANY
QUESTIONS THAT YOU HAVE.

>> THANK YOU, SETH.

YOU HAVE FOUR MINUTES LEFT, SO
I'LL TAKE A MINUTE, BUT THIS WAS
GREAT.

>> FIVE MORE MINUTES.

>> DID THE CAMBRIDGE CITY
COUNCIL ACTUALLY PUT A POLICY TO
MANDATE ALL THOSE METRICS, BUT
SPECIFIC THE 2020 MUNICIPAL
BUILDINGS HAVE TO BE MVC?

>> THE CITY COUNCIL ADOPTED THE
RECOMMENDATIONS OF THE NET-ZERO
TASK FORCE, WHICH IS THE
NET-ZERO ACTION PLAN.

AS WE RENEW THE PLAN, WE GO
THROUGH THE PROCESS OF CODIFYING
EACH RECOMMENDATION.

>> WILL THERE BE A ZONING CODE
CHANGE?

>> FOR THE PRIVATE SECTOR
BUILDINGS, IT IS THROUGH ZONING
CHANGES.

>> THE FIRST ONE, THE MLK
SCHOOL, IT WAS 2015 IT WAS
BUILT?

AND IT IS NOT ALL ELECTRIFIED.
50% OF THEIR ENERGY COMES FROM
PANELS ON THE ROOF?

>> FOR THEIR ELECTRICITY, YES.

>> THAT'S PRETTY REMARKABLE.

WHAT WERE SOME OF THE -- I'LL
ASK YOU A LEADING QUESTION THAT
I KNOW THE ANSWER TO.

HAVE THERE BEEN ANY PROJECTS
THAT YOU HAVE BEEN UNABLE TO DO
BECAUSE OF THESE GUIDELINES?

IN OTHER WORDS, DID YOU
SACRIFICE PROGRAMMING IN THE
CITY AT ALL TO MEET
NET-ZERO-CARBON?

>> NOT AT ALL.

>> COUNCILOR WU?

>> THIS IS GREAT.

THANK YOU SO MUCH.

THERE'S SO MUCH POTENTIAL AND EXCITEMENT SEEING THAT OUR NEIGHBORS ARE ALREADY DOING THIS.

CAN YOU TALK A LITTLE BIT MORE ABOUT THE DISTINCTION BETWEEN MUNICIPAL AND HOW YOU MIGHT HAVE HAD TO THINK THROUGH BUDGETING OR FACTORS THAT HAD TO GO INTO THE ANALYSIS OF WHEN YOU CAN KICK START THAT EFFORT OR THOSE REQUIREMENTS?

>> YEAH.

FLIP BACK A FEW SLIDES TO THE TIMELINE.

AGAIN, THIS OUTLINES THE TECHNICAL AND ECONOMIC STUDY THAT WE'RE COMMITTED TO DOING BEFORE WE ADOPT THE NET-ZERO REQUIREMENTS FOR THE PRIVATE SECTOR BUILDINGS.

IT'S SPECIFICALLY LOOKING AT THE NUMBER OF EXISTING NET-ZERO BUILDINGS WITHIN THAT BUILDING TYPE.

SEEING THERE IS PRECEDENT AND THE MARKET HAS AN UNDERSTANDING OF HOW TO BUILD THAT TYPE OF BUILDING, AGAIN, LOOKING AT THE INDUSTRY ITSELF AND ITS CAPACITY, SO ARE THERE EXPERTS, DO FOLKS KNOW WHAT TECHNOLOGIES ARE AVAILABLE AND HOW TO USE THOSE TECHNOLOGIES TO ACHIEVE NET-ZERO EMISSIONS, IT IS LOOKING AT THE ACCESS TO RENEWABLE ENERGY OFFSITE OR ONSITE TO ALLOW THEM TO ACHIEVE THAT BALANCE OF ZERO EMISSIONS OVER A YEAR.

THEN LOOKING AT THE COST, INCLUDING THE COST IN BENEFITS OVER TIME AND HOW THE ENERGY SAVINGS RELATES TO THE CAPITAL COST OF THE CONSTRUCTION.

THEN ALSO LOOKING AT SOME CO-BENEFITS.

ONE TOPIC THAT I'M PARTICULARLY EXCITED ABOUT IS THE IDEA OF ENERGY RESILIENCE AND THE IDEA THAT BUILDINGS THAT USE LESS ENERGY CAN BE MORE RESILIENT TO THE CLIMATE CHANGE THAT WE'RE

ALREADY SEEING.
DURING A HEAT WAVE, A VERY
EFFICIENT BUILDING WILL STAY
COMFORTABLE, EVEN WITHOUT POWER.
SAME THING WITH DURING A COLD
SPELL.
EVEN WITHOUT POWER, A VERY
EFFICIENT BUILDING WILL STAY AT
A MUCH MORE COSTLY TEMPERATURE
THAN A BUILDING THAT HAS A VERY
LEAKY ENVELOPE.>> COUNCILOR FLYNN.
THESE ARE QUESTIONS -- I'LL GET
TO YOUR QUESTIONS AFTER.
>> THANK YOU COUNCILOR O'MALLEY
AND THANK YOU FOR BEING WITH US
TODAY.
WE APPRECIATE YOUR INPUT.
WHAT ARE SOME OF THE OBSTACLES
THAT YOU MAY HAVE RUN INTO,
CAMBRIDGE MAY HAVE RUN INTO IN
TRYING TO ACHIEVE NET ZERO
CARBON, ANYTHING YOU WANT TO
TALK ABOUT ON THAT SUBJECT?
>> SURE.
SO IN LOOKING AT THE DIFFERENT
TECHNOLOGIES THAT WE WOULD USE
FOR THESE BUILDINGS SOMETIMES
THERE ARE PHYSICAL OR
TECHNOLOGICAL OBSTACLES SO AGAIN
WE'VE USED GROUND SOURCE AS A
SOURCE OF HEATING AND COOLING
FOR THESE BUILDINGS.
THEY GENERALLY ARE A LITTLE MORE
EFFICIENT THAN AIR SOURCE HEAT
PUMPS BUT THEY REQUIRE QUITE A
BIT OF SPACE DRILLING FAR DOWN.
THE SHELTER BUILDING, THE
ORIGINAL GROUNDS WERE FOR GROUND
SOURCE BUT THEY HIT BED ROCK AND
COULDN'T DRILL ANY DEEPER SO HAD
TO SWITCH TO AN AIR FORCE
TECHNOLOGY.
SOMETIMES THERE ARE PHYSICAL
CONSTRAINTS THERE.
I THINK CERTAINLY THERE IS
ALWAYS THE CONVERSATION AND
UNDERSTANDING THE CAPITAL
BUDGETS AND THOUSAND THE BUDGETS
PLAY OFF.
ONE OF THE CHALLENGES WE HAVE
AND ONE OF THE THINGS WE'RE
LEARNING FROM BOSTON AND BOSTON
TRUST IS HOW DO WE APERTURE
OPERATIONAL SAVINGS AND ACTUALLY

APPLY THOSE TO OUR CAPITAL BUDGETS BECAUSE IN CAMBRIDGE THOSE ARE VERY COST OF MONEY AND WHILE THESE BUILDINGS ARE COST EFFECTIVE WHEN YOU CAN MERGE THE TWO IF YOU'RE LOOKING AT CAPITAL BUDGETS IN ISOLATION AND NOT APPLYING THOSE SAVINGS OVER TIME, THEN IT CAN BE HARD TO JUSTIFY THOSE INVESTMENTS.

NOT ONLY THE OPERATIONAL SAVINGS BUT THINGS LIKE INCENTIVES FROM THE STATE GOVERNMENT AND FEDERAL GOVERNMENT THAT CAN HELP REALLY IMPROVE THE COST EFFECTIVENESS OF THESE PROJECTS.

SO ONE OF THE THING AGAIN WE'RE HOPING TO RENEW BOSTON TRUST ABOUT HOW CAN WE BETTER KIND OF MERGE THOSE FINANCIAL FLOWS AND SHOW THE FINANCIAL BENEFIT OF THESE VERY EFFICIENT BUILDINGS OVER TIME.

>> DOES CAME BRIDGE OFFER ANY INCENTIVES TO POTENTIAL COMPANIES TO MOVE IN THAT IS INTERESTED IN THIS FIELD.

AND IF SO, WHAT TYPE OF RESOURCES WOULD YOU PROVIDE, WHAT TYPE OF INCENTIVES IS THE PRIVATE SECTOR ACTIVELY WORKING WITH THE CITY GOVERNMENT ON THIS ISSUE AS WELL.

>> SURE.

SO MOST OF THE INCENTIVES FOR THESE BUILDING TECHNOLOGIES COME FROM THE STATE.

AS YOU KNOW, MASSACHUSETTS IS VERY VERY STRONG, STATE ENERGY EFFICIENT INSENT TFS.

ONE OF THE THINGS WE TRY TO DO BOTH WITH OUR OWN PROJECT AND THE PROFIT SECTOR PROJECTS ARE TO ENCOURAGE THOSE DEVELOPERS TO WORK WITH THE STATE AND THE UTILITIES ON THOSE INCENTIVES VERY EARLY IN THE PROJECT.

THE EARLIER IN THE PROJECT THAT YOU START LOOKING AT THE INSENT TUFTS AND ENERGY DESIGN THE MORE YOU CAN TAKE ADVANTAGE TO ACHIEVE ENERGY SAVINGS IN THE BUILDING.

THAT'S THE MAJORITY OF THE

MONETARY SAVINGS COME FROM.
WHAT THE CITY DOES PROVIDE IS
TWO THINGS.

WE PROVIDE TECHNICAL SUPPORT TO
BUILDERS AND TO BUILDING
OPERATORS IN CAMBRIDGE.

SO WE HAVE SOMETHING CALLED THE
MULTIFAMILY PILOT PROGRAM FOR
MEDIUM SIZE MULTIFAMILY
BUILDINGS, LEVERAGES THE STATE
INCENTIVES BUT THE CITY HAS
ESTABLISHED AN ADVISOR SERVICE
THAT CAN HELP BUILDINGS
AND-A-HALF TBAIT THAT PROCESS
AND UNDERSTAND WHAT THE
RESOURCES ARE.

CAN GET THESE COMPLICATED ENERGY
ASSESSMENTS BACK AND IT'S HARD
TO KNOW HOW YOU PRAYINGALLIZE
THAT SO THAT'S ADVISORS TO HELP
THAT.

THROUGH THE ACTION PLAN WE'RE
ALSO STUDYING OTHER POTENTIAL
INCENTIVES FOR NEW BUILDINGS
SUCH AS POTENTIAL DENSITY BIASES
SO THERE ARE ADDITIONAL F.A.
RNCH GRANTED TO BUILDINGS TO
MEET THE NET ZERO TARGET AWE
HOLD SCHEDULE SO WE'RE STUDYING
THE TECHNICAL PARAMETERS OF
THOSE POLICIES RIGHT NOW WITH
THE HOMES IT COULD MOVE FORWARD
TO ADOPTION IN THE NEXT YEAR OR
SO.

>> THANK YOU.

>> SETH THANK YOU SO MUCH FOR
COMING HERE I KNOW YOU STAYED
LONGER THAN YOU CAN.

WE REALLY APPRECIATE, I
APPRECIATE THE LEADERSHIP AND
WHAT YOU'RE TO GO IN CAMBRIDGE
AND WHAT YOU'RE DOING FOR US.
THANK YOU VERY MUCH.

>> SHUTLY, HAPPY TO BE HERE.

>> I UNDERSTOOD, YOU'RE ON A
LUNCH BREAK.

DEDICATED CIVIL SERVANT.

>> ON OUR GREEN BUILDING ZONING.

>> GOOD ALL RIGHT, SLEPT.

COUNCILOR FLYNN NOW YOU'RE UP
FOR THE PANEL.

THANK YOU AGAIN FOR LETTING US
TAKE A STEP OUT OF TURN.

>> THANK YOU COUNCILOR O'MALLEY

AND COUNSELOR WU FOR YOUR HERESHIP.

I WANT TO THANK THE PANEL FOR BEING HERE AND YOUR LEADER SHIP ON THIS IMPORTANT ISSUE AS WELL. I JUST WANT TO MAYBE ASK THE SIMILAR QUESTION THAT I ASKED TO SETH BUT IS THERE, IS THE CITY PROVIDING ANY, YOU KNOW, INCENTIVES, RESOURCES, TAX ASSISTANCE, TACKS BREAKS FOR BUILDING OWNERS THAT MIGHT WANT TO ACHIEVE NET ZERO OR WHAT TYPE OF ASSISTANCE ARE WE PROVIDING, A COMPANY THAT MAY WANT TO COME TO BOSTON AND PARTICIPATE IN A SIMILAR PROGRAM.

>> IT'S A GOOD QUESTION, COUNCILOR, AND IT'S ONE THAT I CAN CIRCLE BACK WITH BOSTON PLANNING AND DEVELOPMENT AGENCY AND LET YOU KNOW.

I WILL SAY IT'S PROBABLY IN THE MIX WHEN THEY'RE BALANCING THE COMMUNITY BENEFITS OF THE PROJECT BUT I THINK YOUR QUESTION GETS TO IS THERE AN ACTUAL SPECIFIC INCENTIVE FOR THIS.

AND IT'S AN INTERESTING APPROACH, PARTICULARLY WHEN YOU LOOK AT THE FACT THAT UNLESS YOU ARE THE LONG TERM PROPERTY OWNER, UNLESS YOU INTEND TO OWN THIS PROPERTY FOR SOME TIME, THE ENERGY SAVINGS DON'T PAY FOR THEMSELVES.

AND SO IT IS AN UP FRONT COST. SO THE WAY WE'VE BEEN APPROACHING IT AGAIN ENTHUSE OUR ARTICLE 37 WORK AND THE WORK OF THE INTERAGENCY GREEN BUILDING COMMITTEE THAT WE HAVE ALONG WITH THE BOSTON PLANNING DEVELOPMENT AGENCY IS REQUIRING BUILDINGS OVER 50,000 SQUARE FEET TO REALLY SUBMIT THEIR PLAN HOW THEY'RE GOING TO ACHIEVE THE DIFFERENT GOALS WE'RE ASKING OF THEM.

BUT I THINK IT'S AN INTERESTING TWIST TO HOOK AFTER THE CHILD ACTION PLAN ES EARN -- CLIMATE PLAN ESPECIALLY SINCE WE HAVE

THE ECONOMIC VOTE AT THE TABLE.
HOW DO YOU INCREMENT VISE THIS
BECAUSE A LOT OF THOSE BUILDINGS
BEING DEVELOPED ARE NOT GOING TO
BE OWNED BY THE INTREATS THAT
ARE ACTUALLY DEVELOPING THEM.
YOUR POINT IS WELL MET.

>> I'M JUST ON ANOTHER ISSUE.
WHAT CAN WE DO ABOUT OLDER
BUILDINGS, CITY BUILDINGS WE
HAVE THROUGHOUT THE
NEIGHBORHOODS THAT CERTAINLY ARE
NOT ENVIRONMENTALLY FRIENDLY, IN
THEIR TIME THEY PROBABLY, FOR
EXAMPLE MANY OF THE OLDER
SCHOOLS WE HAVE, THE HDAC IS
USING A LOT OF ENERGY AND IT'S
PROBABLY PROVIDING A LOT OF DUST
OR CHEMICALS INTO THE AIR.
I DON'T THINK THEY'RE ALL THAT
HEALTHY THEY'VE BEEN THERE FOR
SO LONG.

WHAT CAN WE DO WITH SOME OF
THESE OLDER BUILDINGS TO MAKE
THEM MORE
ENVIRONMENTALLY FRIENDLY
ESPECIALLY TO OUR STUDENTS SO
THAT THEY CAN STUDY AND THEY CAN
LEARN IN A BETTER ENVIRONMENT.

>> SO COUNCILORS, THESE A COUPLE
THINGS.

THESE THE TYPICAL TYPES OF
PROJECTS THAT WE DO THROUGH THE
CAPITAL PLAN THAT ADDRESS MANY
OF THE CONCERNS THAT YOU
MENTIONED.

NOT ALL OF THE PROJECTS IN THE
PLAN AS YOU KNOW ARE MAJOR
RENOVATIONS OR NEW CONSTRUCTION.
OF THEM ARE SORT OF DEFERRED
MAINTENANCE TYPE PROJECT OR UP
GRADES.

AND AS WE ADDRESS THOSE
BUILDINGS THROUGH THOSE CAPITAL
PROJECTS, WE GENERALLY, IT'S
SORT OF ACCEPTED PRACTICE NOW TO
MAKE THEM MORE EFFICIENT AND
MAKE THEM HEALTHIER
ENVIRONMENTS.

SO THAT'S SORT OF ONE WAY THAT
WE ADDRESS THOSE OLDER
BUILDINGS.

THEY SORT OF MAKE THIS WAY INTO
THE CAPITAL PLAN AND GET PUT

INTO THE QUEUE.

IN ADDITION AS CHIEF COOK MENTIONED EARLIER, THE BOSTON TRUST IS A HUGE OPPORTUNITY FOR US TO ACCELERATE A LOT OF POSSIBILITIES.

WE ARE CURRENTLY AS YOU MENTIONED IN THE FIRST PHASE WHICH IS SOMEWHAT OF A PILOT PHASE FOR US BECAUSE THIS IS BRAND NEW WAY OF DEFERRING PROJECTS FOR THE CITY.

IT'S A BRAND NEW WAY OF FINANCING THEM.

IT'S A BRAND NEW WAY OF DELIVERING THEM.

IT'S A PROCESS THAT WE SORT OF HAD TO LEARN AND WE'RE STILL LEARNING ABOUT.

WE'RE IN THE CONSTRUCTION PHASE RIGHT NOW WHICH I THINK IS REALLY A GREAT HURDLE FOR SOME PILOT PHASE.

WE'RE LOOKING FORWARD TO AND STARTING TO PLAN PHASE TWO OF THAT.

NOW THE NUMBER OF SITES THAT WE'RE PLANNING IN PHASE TWO ARE DRAMATICALLY GREATER THAN WHAT WE DID IN OUR PIE HUT FAWZ.

SO I THINK AS WE ABOUT MORE ACCUSTOMED TO THIS NEW PROGRAM AND NEW PROJECT DELIVERY METHOD, WE ARE GOING TO ACCELERATE OUR ABILITY TO ADDRESS SOME OF THESE SYSTEMS.

>> I WOULD ADD THAT PHASE TWO WE'RE ROLLING INTO WE DON'T LOSE ANY TIME ROLLING INTO THE PHASE TWO IT'S REALLY JUST RELEASING THE FUNDS BECAUSE THE PROPERTIES HAVE ALREADY BEEN AUDITED.

AFTER THE PHASE ONE CONSTRUCTION WHICH WE'RE ALREADY IN CURRENTLY IN AND MOVING INTO PHASE TWO THAT PROFESSIONAL INCLUDES SCHOOLS SO WE CAN BE VERY INTENTIONAL MAKE ARE SURE WE'RE MAKING IMPROVEMENTS THAT INCREASE THINGS LIKE THE AIR QUALITY AND PARTICULATES THAT ARE IN THE AIR.

TO SETH'S POINT IN HIS TESTIMONY HE TALK BOARD OF DIRECTOR

RESILIENCE WHICH GETS TO CORE
EQUITY ISSUES THAT ARE
ASSOCIATED AND EXACERBATED BY
CLIMATE CHANGE.

I THINK WE HAVE TO BE VERY
INTENTIONAL ABOUT HOW WE
ACTUALLY DISTRIBUTED OUR HIGH ME
LIMITED CAPITAL RESOURCES AND BE
INTENTIONAL ABOUT WHICH SCHOOLS
AND WHICH BUILDINGS GET SERVED
FIRST.

THAT'S ONE OF THE EXCITING THING
WE'RE EXCITED ABOUT FULL
PARTICIPATION IN THE CLOIMENT
ACTION PLAN.

IT'S SOMETHING THAT ACTUALLY
SHOULD HAVE MENTIONED AT THE
VERY BEGINNING.

THE OUTSTANDING LEADERSHIP OF
THE BOSTON STUDENT ADVISORY
COMMITTEE HAS BEEN EXCEPTIONAL
ON THIS ISSUE.

THEY HAVE A WHOLE COHORT THAT IS
FOCUSED ON RENEWABLE ENERGY AND
GREEN BUILDINGS.

CHIEF AND I ARE ACTUALLY MEETING
WITH THE STUDENTS IN AN UPCOMING
MEETING TO DISCUSS THE MATTERS
THEY'RE PUSHING FORWARD.

WHAT I'VE BEEN SO HEARTENED OAF
THE PAST FEW MONTHS, I'VE BEEN
IN THIS POSITION, IS THAT THE
YOUNG PEOPLE FULLY UNDERSTAND
HOW IMPORTANT THIS ISSUE IS BUT
ALSO THE IMMA CASES IT HAS FOR
EQUITY.

SO I THINK THEIR FULL PARTS
PAYING THE CLIMATE ACTION PLAN
IS REALLY GOING TO GUIDE OUR
RENEW BOX AND TRUST WORK.

>> THANK YOU COMMISSIONER.
AND THANK YOU TRISHA.

MY FINAL QUESTION, I HAD THE
OPPORTUNITY TO THIS WEEK I WAS
IN THE MAY GROUND OF THE JOSIAH
QUINCY SCHOOL IN CHINATOWN WITH
THE PRINCIPAL ANDY, THE
ASSISTANT SUPERINTENDENT LOOKING
AT SECURITY ISSUES.

MY SON WENT THERE FOR SEVERAL
YEARS AS WELL.

BUT THEIR PLAYGROUND SOMEWHAT
UNRELATED TO THIS BUT THIS MAY
GROUND IS ALMOST ON THE TOP OF

MASSPIKE AND I WOULD THINK THE CHILDREN PLAYING IN THE PLAYGROUND AND THE FUMES COMING UP FROM THE MASSPIKE AND CLOSE TO THE, PRESS WAY SYSTEM AS WELL.

BUT IS THERE ANYTHING WE CAN DO, TARGETING OR LOOKING AT SCHOOLS THAT ARE IN DIFFICULT AREAS IN MAKING SOME CHANGES SO AS YOU MENTIONED COMMISSION YOU TALK ABOUT THE AIR QUALITY.

THAT'S A MAIN CONCERN FROM AIR QUALITY FOR OUR STUDENTS.

IS THERE ANYTHING THAT THE CITY OF BOSTON CAN DO TO ENSURE THAT OUR CHILDREN THAT ARE PAYING THESE PLAYGROUNDS OR PARKS AND IF THE PARK IS ALREADY LOCATED IN A SITUATION THAT'S NOT IDEAL. WHAT CAN WE DO TO IMPROVE THE AIR QUALITY FOR OUR YOUNG PEOPLE.

>> SO COUNCILOR, AT THE RISK OF GETTING OVERLY EXCITED ABOUT THE FACT YOU JUST ASKED THAT QUESTION AND THE ENTIRE ENVIRONMENT DUPE ROLLING THIS EYES, ONE OF THE BENEFITS THAT I HAVE AS A PARKS BACKGROUND IS THAT I ACTUAL ME THINK LANDSCAPE ARCHITECTURE IS ONE OF THE SOLUTIONS FOR A HUGE EQUITY PROBLEM THAT WE HAVE WITH CLIMATE RESILIENCE AND THAT IS SOMETHING AS BASIC AS THE HEAT ISLAND INDEX FOR A LOT OF OCCASIONS OF OUR SCHOOLS. MOST OF OUR SCHOOL IN THE TIME THEY WERE BUILT ARE FULLY SURROUNDED BY MICK ADAM THEY ARE UNDER TREE CANOPY AND THERE'S A TON OF INSTEAD OF CO-BENEFITS THERE ARE CO-ANTI-BENEFITS. THERE ISN'T FORM WATER MANAGEMENT ON SITE. THERE ISN'T QUALITY AIR ON SITE AND THE PLACES OUR KIDS HAVE TO PLAY ARE TO HOT. WHEN THEY HAVE THE ADDITIONALLITY BEING LOCATED SOME PLACE WHERE THERE'S A LOT OF FOSSIL FUELS BEING BURNT IT LEADS TO POOR AIR QUALITY.

IT DOESN'T MATTER HOW MUCH MONEY
AND THE PUBLIC FACILITIES
DEPARTMENT DOES A TERRIFIC JOB
ON RENOVATING MAY GROUNDS.
I THINK THE COMMONNITIES
THEMSELVES ARE STARTING TO USE
COMMUNITY PRESERVATION ACT AS
GREAT TOOLS TO RENOVATE THESE
MAY GROUNDS BUT WE NEED TO BE
DELVING INTO THE PRACTICES OF
ARCHITECTURE TO INCORPORATE
NATURE BASE SOLUTIONS INTO
MAKING SURE THAT THESE SPACES
ARE AS GREEN AS POSSIBLE.
NATURE HAS A WAY OF CLEANING AIR
AND A LOT OF WAY HUMAN HAVE TO
GET OUT OF THE WAY AND LET
NATURE DO ITS THING.
WE HAVE TO REINTRODUCE NATURE
INTO OUR DA SIGN.
THIS A LOT OF OPPORTUNITIES TO
DO THAT AND WE LOOK TO
PARTNERING TO MAKE SURE WE
INCORPORATE THOSE DESIGNS.
>> THANK YOU COMMISSIONER.
I DON'T WANT TO SPEND TOO MUCH
TIME ON THIS BUT IT'S NOT A
COINCIDENCE THAT THE KIDS IN
CHINATOWN HAVE THE HIGHEST
ASTHMA RATE OF ANY NEIGHBORHOOD
IN THE CITY AND IT'S BECAUSE
THEY ARE BREATHING FUMES FROM
THE MASSPIKE AND THE NEARBY
EXPRESSWAY.
THAT'S THEIR PARK, THAT'S THEIR
OPEN SPACE AND THIS BALL FIELDS
AND PLAYING HIM ON TOP OF THESE
HIGHWAY SYSTEMS.
SO NOT ONLY, I'M SO HAPPY THAT
YOU'RE DOING THIS BUT IT'S
ALSO AN OPPORTUNITY TO WORK
CLOSE ME WITH PUBLIC HEALTH AS
WELL.
GET THEM INVOLVED IN HIM HETERO
THEM BE PART OF THE DISCUSSIONS
THAT ARE TAKING PLACE AS WELL.
>> THEY HAVE TO BE.
AND THE PROBLEM IS COMPLEX AS
YOU IDENTIFIED WHICH MEANS THE
SOLUTION HAS TO BE COMPLEX AND
THAT'S WHY THE CLIMATE ACTION
PLAN HAS SUCH AN INTENTIONALITY
AROUND IT, AROUND EQUITY AND
WE'RE VERY GLAD THAT THE BOSTON

PUBLIC HEALTH COMMISSION IS PART
ON OF THAT TABLE.
BY THE WAY WE'RE NOT GOING TO
SLOW DOWN.
WHENEVER THE PARTIALS DEPARTMENT
CAN PARTICIPATE IN -- PARKS
DEPARTMENT CAN PARTICIPATE IN
THOSE SOLUTIONS AS WELL.
>> THANK YOU FOR YOUR LEADERSHIP
ON THIS IMPORTANT ISSUE.
>> THANK YOU COUNCILOR.
JUST VERY BRIEFLY BEFORE WE
BRING UP OUR SECOND PANEL.
ARE ANY MUNICIPAL BUILDINGS
CURRENTLY ALL ELECTRIFIED OR
NEARLY ALL ELECTRIFIED ARE YOU
AWARE.
>> WE'D HAVE TO GET PACK.
>> I'D HAVE TO CHECK.
>> PROBABLY NOT, I'M ASSUMING.
>> I DON'T WANT TO --
>> ANY UNDERSTAND.
MORE CURIOUS THAN ANYTHING.
ALL RIGHT PEOPLE HAVE BEEN
WAITING.
I APPRECIATE WE ALL WANT THE
SAME THINGS HERE AND I WOULD
UNDERSCORE THE URGENCY WE HAVE
11 YEARS TO GET THIS RIGHT TO
REALLY RETROFIT TO LOOK AT NEW
CONSTRUCTION AND LOOK AT
EXISTING BUILDING STOCK WE HAVE
TO START SOMEWHERE AND THE CITY
NEEDS TO TAKE A LEAD AND WE ALL
SHARE THAT I'M JUST INCREDIBLY
HOPEFUL GOING FORWARD WE CAN
MAKE THIS JUST AS IF I WERE TO
SAY CAN WE PROMISE ALL NEW
MUNICIPAL THINGS ARE HANDICAP
ACCESSIBLE.
OF COURSE I HOPE WE START YG
THAT ZERO CARBON AS SEEK IT THE
SAME WAY AS JUST THE NORM IN
SOMETHING THAT COULD BE EXPECTED
FROM EVERY CITY BUILDING.
I THANK YOU.
WIRE GOING TO HEAR FROM OUR
FINAL PANEL NOW.
I REALLY APPRECIATE IT.
THANK YOU.
I WOULD LIKE THESE PEOPLE TO
PLEASE JOIN US IN THE FIRST.
I THINK WE'VE GOT FIVE SO YOU
CAN ALL SIT THERE AND MAYBE PULL

A CHAIR OVER OR IF SOMEBODY WANT
THEIR OWN, IF YOU WANT TO SIT ON
THE END.

ALL RIGHT, THANK YOU.

HOW MANY ENVIRONMENTALISTS DOES
IT TACK TO GET AN EXTRA CHAIR.

THANK YOU.

WHO WOULD LIKE TO BEGIN?

WE'LL GO MY HEFT TO YOUR RIGHT.

PLEASE.

WE'LL GO DOWN THE LIST AND IF
YOU HAVE AN OPENING STATEMENT
WE'LL GET INTO IT BEFORE THE
QUESTION.

>> I'M JACOB NOLLS I'M THE
DIRECTOR OF SUSTAINABLE DESIGN
IN BOSTON, 370-PERSON
MECHANICAL, HECK CULL PLUMBING
AND FIRE PROTECTION ENGINEERING
FIRM HEAD QUARTERED HERE IN
BOSTON.

>> THANK YOU.

>> I'M MARK, PRESIDENT OF MASS
SOLAR WHICH IS A NON-PROFIT
ORGANIZATION WORKING TO ENSURE
FAIR AND EQUITABLE ACCESS
TO SOLAR FOR EVERYONE IN THE
COMMONWEALTH.

I HAVE BEEN THE CHAIR OF
SUSTAINABLE LEXINGTON WHICH IS
AN APPOINTED COMMITTEE FOR THE
PAST EIGHT YEARS AND THEY WEEKS
AWE CO-I WAS RECENTLY ELECTED TO
THE BOARD OF SELECT MEN.

>> CONGRATULATEON.

THAT'S GREAT.

>> I'M MEREDITH, I AM AN
ARCHITECT.

I'M ALSO THE EXECUTIVE DIRECTOR
OF THE U.S. GREEN BUILDING
COUNCIL OF MASSACHUSETTS.
WE ARE AN INDEPENDENT
ORGANIZATION FROM NATIONAL U.S.
GREEN BUILDING CAMP REFERENCING
THE U.S. GBC EARLIER IT GETS
CONFUSING WHETHER THEY ARE
REFERENCING US OR REFERENCING
THE LOCAL CHAPTER.

SO TO CHAR FIRE WE'RE AN
INDEPENDENT ORGANIZATION FROM A
NATIONAL ORGANIZATION.
WE ADVOCATE AND DRIVE FOR MORE
SUSTAINABLE BUILDINGS LOOKING AT
OPERATIONS, DESIGN AND

CONSTRUCTION FOR MORE
SUSTAINABLE AND ENVIRONMENT.
I CON REPRESENTING PEOPLE WHO
ARE DOING JUST THAT FOR THE
DEPARTMENT.

>> I'M CANDY PETERSON, I'M THE
DIRECTOR OF CLEAN ENERGY AT THE
METROPOLITAN PLANNING COUNCIL
THE REGIONAL PLANNING AGENCY FOR
GREATER BOSTON.

>> I'M CAROL AROUNDMAN I'M THE
EXECUTIVE DIRECTOR OF
MASSACHUSETTS CLIMATE ACTION
NETWORK.

>> THANK YOU.

DOES ANYONE HAVE AN OPENING?
DOES EVERYBODY HAVE AN OPENING
STATEMENT?

I GUESS WE'LL START WITH JACOB
AND THEN GO DOWN.

>> THANK YOU.

SO FOR A NUMBER OF YEARS NOW,
BASICALLY ALL I WORK ON ARE ZERO
NET ENERGY AND ZERO NET CARBON
BUILDINGS.

>> I'M SORRY.

THIS IS YOUR PRESENTATION AS
WELL.

>> OKAY PERFECT.

DO WE WANT TO MAYBE, SORRY TO
CUT YOU OFF.

MAYBE PERFECT, THANK YOU RON.
PROCEED, JACOB.

>> INTERESTING TO HEAR THOUGHTS
ON EXISTING VERSES NEW
STRUCTURES.

THE EXAMPLES I'M GOING TO SHOW
TODAY ARE LARGELY NEW BUT SOME
ARE RENOVATIONS.

I JUST WANT TO PRESENT SOME OF
THESE AS EXAMPLES THAT THIS IS
VIABLE AND POSSIBLE AND
HAPPENING AROUND BOSTON.

SO WE GO TO THE INCOME SLIDE.

WE'D LIKE TO THINK OF OUR
PROJECTS AS SCALING UP THIS
CONCEPT OF ZERO NET ENERGY AND
ZERO NET CARBON.

OFTEN TIMES YOU THINK OF A
SINGLE FAMILY HOME OR MAYBE A
TRIPLE DECKER AS A GOOD
CANDIDATE FOR ZERO CARBON.

WHAT WE'RE SEEING NOW IS LARGE
HIGH RISE DENSE URBAN STRUCTURES

ACHIEVING THE SAME EXCITING GOALS.

SO WE CAN FLIP THROUGH THESE PRETTY QUICKLY.

THE NEXT ONE IS HARVARD NET ZERO THE CENTER FOR GREEN BUILDINGS AND CITIES.

IT IS THE RENOVATION OF AN EXISTING STRUCTURE.

TO THE NEXT SLIDE.

THIS IS HARVARD 'S ART LAB FACILITY NEW CONSTRUCTION.

THE NEXT ONE.

THIS ONE IS AN INTERESTING EXAMPLE, IT'S THE SPRAYING BUILDING HEALTH AND SCIENCE FACILITY FOR BRISTOL COMMUNITY COLLEGE IN FALL RIVER.

THE EXCITING THING ABOUT THIS PROJECT YOU WERE ASKING EARLIER WHAT'S THE TRANSITION FROM WEED TO ZERO CARBON.

THIS WAS A PROJECT THE DECAM STATE FUNDED PROJECT SO IT HAD TO BE LEAD SILVER PLUS SIMILAR TO BOSTON REGULATIONS.

AND SO IT'S FUNDED AS SUCH.

AND THE PROJECT WENT ON HOLD FOR APPROVAL AND FUNDING, THE BASIC DESIGN HAD BEEN DEVELOPED, IT WAS ALL STANDARD HIGH PERFORMANCE BUT OF COURSE FOSSIL FUEL CONSUMING SYSTEMS.

AND THE COLLEGE SAID DURING THAT TIME WHEN WE WERE WAITING FOR APPROVAL, WE ARE COMMITTED TO ACHIEVING CARBON NEUTRAL BY 2050.

SO WE DID AN ENERGY MODEL OF OUR PROPOSED DA SIGN AND IT WAS GOING TO USE HALF OF THE ENTIRE CAMPUS WORTH OF ELECTRICITY CONSUMPTION AND 120 HOMES WORTH OF NATURAL GAS.

AND IT'S GOING TO BE A HUGE CARBON FOOTPRINT.

WE WENT BACK TO THE DRAWING BOARD AND DEVELOPED A PARALLEL DESIGN AND PROVED TO THE STATE THAT WE COULD DO ZERO NET CARBON FOR NO ADDITIONAL FUNDING FOR THE JOB BECAUSE BUDGET WAS SET, WE COULD NOT INCREASE IT.

THAT SOUNDS CRAZY BUT IT'S ALL

ABOUT WHERE ARE YOU GOING TO SPEND THE MONEY.

IT WASN'T TAKING AWAY FROM PROGRAM IT WAS BEING SMARTER WITH THE WAY WE DELIVERED THE EXACT SAME PROGRAM BY RIGHT SIZING CHEMICAL SYSTEM USING FUME HOODS IN THE LABS SO WE REALLY TURNED THE WHOLE PAYER TIME ON ITS HEAD AND CAME ACROSS THE FINISH HAWAIIAN WITHOUT GOING BEYOND THE CONSTRUCTION CONTINGENCY DURING CONSTRUCTION DURING A PERIOD WHEN OTHER PROJECTS WERE GOING THROUGH THE ROOF.

SO IT REALLY PROVED TO US AND TO EVERYBODY INVOLVED IN THE PRAWMG THAT THIS IS NOT ONLY REAL BUT IF YOU DO IT RIGHT IT'S A NO BRAINER.

SO THAT'S REALLY TO ME THE TAKE AWAYS.

WE JUST HAVE TO BE SMARTER, NOT SPEND MORE MONEY.

WE CAN GO THROUGH THE HAS FEW SHIEDZ HERE IN TERMS OF SCALING UP.

THIS IS THE CHELSEA SOLDIER'S HOME.

IT'S GOING OUT TO BID A TUESDAY FOR CONSTRUCTION.

WE HAVE DESIGNED IT TO BE ZERO NET ENERGY.

IT HAS GEO THERMAL AND LARGE SCALE SOLAR, CAN PO ACROSS THE ROOF.

IT HAS NEAR PASSIVE LEVEL OF ENVELOPE PERFORMANCE.

BY FAR THE MOST LIFE CYCLE COST EFFECTIVE SOLUTION.

THIS IS SAVINGS THE TAXPAYER DOLLARS.

THAT'S THE TRIPLE BOTTOM LINE ADVANTAGE AND IT'S CREATING THIS AMAZING ENVIRONMENT FOR THESE PEOPLE THAT ARE GOING TO BENEFIT FROM IT FROM A HEALTHY BUILDING STANDPOINT, THERMAL COMFORT AND REALLY PRIDE IN WHAT'S HAPPENING HERE.

THE SPRAG BUILDING THEY WERE GETTING DONORS COMING OUT OF THE WOODWORK SAYING THIS IS

EXCITING.
WE CARE ABOUT THIS.
WE WANT TO PUT OUR NAME IN THE
CONFERENCE ROOM WE'LL GIVE YOU
AIAN DOLLARS.
WE'RE STANDING IN THE
CONSTRUCTION TRAILER AND THE CFO
AT THE COLLEGE LOOKED AND SAID
HEY WE JUST GOT ANOTHER MILLION
DOLLARS.
PEOPLE ARE EXCITED ABOUT THIS.
THIS IS A BIG DEAL.
SO WE ACTUALLY, WE JUST
INTERVIEWED FOR THE MASS ART
RECLADDING AND REPLACING THE
CHEMICAL SYSTEM.
WE DID NOT WIN THE JOB BUT OUR
WHOLE PITCH WAS WE CAN DESIGN
THIS IN THE WAY THAT REDUCES THE
LOADS, LOOKS AT THINGS MORE
PASSIVELY, SMARTER AND PUT IN
HESS INFRASTRUCTURE THAT'S GOING
TO REQUIRE LESS MAINTENANCE.
AND I THINK MOVING AWAY FROM
MAYBE AN ALL GLASS BUILDING IS
SOMETIMES ONE OF THOSE STEPS IN
THE PROCESS THAT SOME PEOPLE
THINK IS WAIT A MINUTE I REALLY
WANT AN ALL ANALYSIS BUILDING
BUT IT'S JUST A LITTLE BIT
THINKING DIFFERENT CANNILY.
YOU KNOW, TOO MUCH ANALYSIS CAN
HEED TO GLARE AND POOR
ENVIRONMENT FOR ART, NOT A
BETTER ENVIRONMENT FOR ART.
THE NEXT SLIDE IS HERE ALSO IN
THE CITY.
THIS IS THE BU DATA SCIENCES
BUILDING.
THIS IS A 19 STORY 330,000
SQUARE FOOT HIGH RISE CLASSROOM
OFFICE TYPE BUILDING THAT IS ON
TRACK.
DON'T OVERSTEP BECAUSE WE'RE
STILL FINALIZING THE DESIGN BUT
THE GOAL IS TO BE ALL ELECTRIC
BUILDING TO BE CARBON NEUTRAL
READY AND RUN OFF BU_s OFF SITE
LARGE SCALE WIND IN TERMS OF
GOAL.
THERE ARE STILL ISSUES TO BE
RESOLVED.
IT'S STILL IN DESIGN DEVELOPMENT
BUT THAT'S THE OVERALL

TRAJECTORY.

>> [INDISCERNIBLE]

>> CORRECT.

>> SO AGAIN, IT'S NOT A HUM
PERCENT YET WE'RE STILL IN
DESIGN DEVELOPMENT BUT IT'S
REALLY EXCITING PATH AND
TRAJECTORY WE'RE ON.

WE'RE ALSO THE ENGINEERS FOR THE
BOSTON ARTS AWE CAPPED ME
FACILITY AND THAT'S USING ALL
SOURCE AIR SEAT PUMPS FOR A
LARGE BUILDING PUSHING INTO NEW
TEETER.

IT VERY EXCITING.

SO THANK YOU FOR YOUR TYPE.

>> THANK YOU JACOB THAT WAS
GREAT.

WE'LL GET THROUGH EVERYBODY
BEFORE WE GET TO SOME QUESTIONS.
I THINK CANDY AND MARK, YOU HAVE
A PRESENTATION AS WELL, RIGHT.

>> YES.

>> EXCELLENT.

CONFRAGILE LATIONS AGAIN.
WE FIRST MET YOU AND I PRESENTED
AT A CONFERENCE EITHER AT BU
ABOUT A YEAR OR SO AGO.

IT WAS BEFORE YOU WERE ELECTED.

>> THAT'S REALLY.

IT WAS A PLEASURE TO SHARE THAT
PANEL WITH YOU BEFORE.

SO YOU HAD MENTIONED YOUR
CLIMATE ACTION PLAN MANY TIMES.
IN LEXINGTON WE'VE RENAMED OUR
CLIMATE ACTION PLAN A
SUSTAINABLE ACTION MAN BECAUSE
WE WANT TO FOCUS ON ISSUES OF
HEALTH AND RESILIENCE AS WELL AS
NET ZERO.

SO WE CAN JUST KEEP GOING HERE.

SO IN LEXINGTON YOU HAD ASKED
ABOUT LEAD SILVER HERE IN BOSTON
AND LEXINGTON WE ADOPTED THE
SUSTAINABLE BUILDING POLICY
WHICH WAS BASICALLY LEAD SURAL
IN 2005 -- SILVER IN 2005.

WE BECAME A GREEN COMMUNITY IN
2010 WITH THE STRETCH ENERGY
CODE AND IN 2013 TOWN PASSED,
ADOPTED AN ARTICLE THAT SAID WE
WOULD CLIMATE CHANGE SAID WE
WOULD CONSIDER CLIMATE CHANGE IN
ALL APPROPRIATE DECISIONS AND

PLANNING PROCESSES WITHIN THE TOWN.

ONE OF THE FIRST THINGS THAT WE DECIDED TO DO AS A RESULT OF THAT WAS TO PUT SOLAR ON OUR SCHOOLS AND SOLAR ON OUR LANDFILLS AND RIGHT NOW WE HAVE SURE ENERGY THAT IS PROVIDING 45 PERCENT OF HEXINGTON'S MUNICIPAL ELECTRICITY DEMAND FROM OUR ROOF THOMPSON AND OUR LANDFILLS.

AND 2017 WE CAN KEEP GOING.

YOU MENTIONED MANY MANY TIMES ABOUT THE EMISSIONS IN BOSTON. WE HAVE VERY SIMILAR TYPE OF PROFILE IN LEXINGTON.

66% OF OUR EMISSIONS COMES FROM OUR BUILDINGS, 36% FROM ELECT CONTEMPORANEOUS TREE.

OUR NUMBER ONE GOAL IN LEXINGTON WE'RE LOOKING HOW TO REDUCE EMISSIONS WE NEED TO LOOK AT ELECT CONTEMPORANEOUS THEY. WE ADOPTED A COMMUNITY CHOICE PROGRAM THAT IS NOT PROVIDING FOR 10,000 CUSTOMERS IN LEXINGTON.

A HUNDRED PERCENT RENEWABLE ELECTRICITY FOR LESS MONEY THAN THEY WOULD BE PAYING FROM EVER SOURCE.

SO WE HAVE DONE THE SAME THING IN THE HAS YEAR FOR OUR MUNICIPAL ELECTRICITY SUPPLY.

WE HAVE CONVERTED ELECTRICITY SUPPLY TO 100% RENEWABLE LOOK CONTEMPORANEOUSITY.

HAS YEAR I MENTIONED THE SUSTAINABLE ACTION PLAN THE SELECT MEN ADOPTED THAT PLAN AWE WELL AS THE NET ZERO EMISSIONS PLAN WHICH WE TOOK A LOT OF LEADERSHIP FROM CAMBRIDGE ON. I HAVE TO THANK THEM A LOT FOR THEIR HELP AND USHERING ALONG THE WAY.

THE GOAL IS TO HAVE ALL RESIDENTIAL BUILDINGS COMMERCIAL BUILDINGS MUNICIPAL BUILDINGS POWERED BY 100% RENEWABLE ENERGY SOURCES OVER THE NEXT 15 YEARS.

YOU MENTIONED LEADERSHIP.

LET'S GO TO THE NEXT SLIDE.

WE IN ORDER TO DEMONSTRATE OUR LEADERSHIP WE DECIDED TO UPDATE THAT 2005 SUSTAINABLE BUILDING POLICY WHICH IS A LEAD SILVER CONSTRUCTION POLICY TO LOOK AT THE OUT COME THAT WE DESIRED. AND INTERESTING ENOUGH WHILE YOU'RE FOCUSING HERE ON NET CARBON ZERO, WE HAVE THOSE GOALS.

BUT IN LEXINGTON WE DECIDED THAT HELL WAS THE PREEMINENT GOAL WE WANTED FOR OUR SUSTAINABLE BUILDING POLICY.

SO WE ARE TAKING BASED ON LEAD BUT WE'RE ACHIEVING ALL OF THE LEAD IN TORE AIR QUALITY POINTS. WE'RE ACHIEVING ALL THE ENERGY EFFICIENT, WE'RE ACHIEVING SIGNIFICANT ENERGY EFFICIENCY POINTS.

WE ARE FINDING HOW MUCH RENEWABLE ENERGY WE WANT ON EACH BUILDING AND WE'RE ACHIEVING ALL THE RESILIENCE POINTS.

SO LET'S JUST KEEP GOING FORWARD HERE.

SO THIS IS HOW THEY ARE RELATED. THE SUSTAINABLE ACTION PLAN IS THE OVERARCHING GOALS IN THE BUILDING SECTOR BUT GETTING TO NET ZERO EMISSIONS PLAN IS WHAT IS TRYING OUR PROGRESS FORWARD. WE CAN KEEP GOING.

I DON'T THINK WE NEED TO SPEND A LOT OF TIME BUT GETTING THE NET ZERO EMISSIONS PLAN IS BASICALLY FORWARD REPORTING THIS IS YOUR BUILDING ENERGY USE DISCLOSURE ORDINANCE WE'RE FOLLOWING IN THE FOOTSTEPS WITH YOU HAVE TO, THERE'S ONLY TWO WAYS YOU CAN REDUCE EMISSIONS.

YOU CAN EITHER BE MORE EFFICIENT WITH YOUR ENERGY EFFICIENCY OR YOU CAN SWITCH TO CLEANER SOURCES OF FUEL.

YOU'RE LOOKING AT PRODUCING THE MAXIMUM AMOUNT OF RENEWABLE ENERGY ON SITE AND PURCHASING THE REST FROM RENEWABLE ELECTRICITY.

AS I MENTIONED BEFORE WE HAVE IMPLEMENTED A COMMUNITY CHOICE

PROGRAM AS THE NEXT SLIDE TO
KEEP MOVING THIS FORWARD.
THIS IS WHAT GETTING TO NET ZERO
EMISSIONS WALLER FALL LOOKS LIKE
AND YOU'LL SEE MOST OF OUR
REDUCTIONS IN THIS BIG BLUE AREA
COMES FROM SWITCHING TO ZERO
EMISSIONS ELECTRICITY.
THERE'S ENERGY EFFICIENT
RETROFITS AND AS YOU MENTIONED
WE WANT TO BE PUTTING IN PLACE
IN THE NEXT TEN YEARS OR SO NET
ZERO NEW CONSTRUCTION POLICY
NEXT.
SO BACK TO THE NET ZERO
BUILDINGS WHICH IS THE POINT OF
YOUR HEARING TODAY, WE ARE RIGHT
NOW IN THE PROCESS OF DEVELOPING
OUR NET ZERO BUILDING.
THE STEEL IS GOING UP RIGHT NOW.
THIS SCHOOL WILL HAVE REMARKABLE
IN DOOR AIR QUALITY.
COURTROOM FLYNN MENTIONED THE
NOTION OF HOW DO YOU PROTECT
YOUR STUDENT WHEN YOU'RE NEAR A
HIGHWAY.
HASTING SCHOOL IS ABOUT 50 YARDS
FROM 128 ON THE EAST SIDE OF
THAT SO THE WESTERLY WINDS ARE
BLOWING THOSE HIGHWAY FUMES
RIGHT TOWARDS THE SCHOOL.
WE ARE BIDDING THE SCHOOL TO
ACHIEVE ALL OF THE IN DOOR AIR
QUALITY GOALS OF LEAD PLUS WE
ARE IN ADDITION TO THAT PUTTING
IN 16 FILTERS HERE WITH 95%
REDUCTION IN PARTICULATE MATTER.
THAT ENDS UP COSTING US ABOUT
\$200 A YEAR IN FILTERS.
IT DOESN'T CHANGE THE CAPITAL
COST OF THE BUILDING.
WE'LL STICK ON THE BUILDING
HERE.
THE ROOF OF THE BUILDING WE WERE
TOLD IT'S IMPOSSIBLE WITH
1010,000 SQUARE FEET.
WE NEED TO HAVE THE ROOF SPACER
DEDICATED TO HVAC.
WE SAID WELL WHAT IF WE SWITCH A
A GROUND SOURCE HETERO PALM.
PALM --
HETERO PANEL.
THAT STILL ISN'T GOOD ENOUGH FOR
US.

WE ARE NOW OUT IN THE PARKING LOT T WE ARE PRODUCING TWICE AS MUCH POWER FROM THE PARKING LOT AS WE ARE FROM THE ROOFTOPS. WE'VE JUST GOTTEN OUR BIDS BACK FROM OUR SOLAR DEVELOPERS. WE'RE GOING TO GENERATE 1.1 MILLION KILOWATT HOURS OF ELECTRICITY FROM THE ROOFTOPS AND CANOPIES. THE BUILDING IS ONLY REQUIRING 900,000 HOURS OF KILOWATT SO WE'LL PRODUCING 20% MORE ELECTRICITY THAN WE NEED TO OPERATE THE BUILDING. BECAUSE WE INVESTED IN THE REMARKABLE ENVELOPE THIS IS 50% LOWER ENERGY THAN A CODE BUILDING. SO THAT MEANS WE'RE GOING TO PRODUCE ALL OUR ELECTRICITY ON SITE. WE'RE GOING TO REDUCE, AND THIS IS SOLAR PLUS STORAGE PROJECT. SO WE'RE GOING TO BE REDUCING PEAK ENERGY DEMAND CHARGES. WE'RE GOING TO BE REDUCING OUR ELECTRICITY DEMAND CHARGES WE'RE GOING TO REDUCE OUR COSTS OF OPERATING THE BUILDING BY \$250,000 A YEAR. MUST AS YOU'RE PROBABLY AWARE THERE'S A LOT OF INCENTIVES FROM THE STATE FOR DOING SOLAR FOR DOING GROUND SOURCE HEAT PUMP AND WE WILL BE HAVING A NET CHANGE OF \$400,000 A YEAR FROM OPERATING EXPENSES ON THIS BUILDING SO WE'RE GOING TO MAKE MORE MONEY BY DESIGNING A NET ZERO BUILDING AND HAVE A HELTER BUILDING AS A RESULT -- HEALTHIER BUILDING AS A RESULT. A LOT OF PEOPLE WANT TO GO FORWARD BUT I CAN TALK TO YOU ABOUT THIS AT SOME LATER POINT IN TIME BUT THE FACTS ARE WE WILL BE GENERATE, THIS SCHOOL WILL COST US LESS MONEY TO OPERATE FROM THE FIRST DAY WE MOVE INTO IT AND WE'LL HAVE BETTER HEALTH YOW COMES FOR OUR STUDENTS AND STAFF. MASSACHUSETTS PLAZA.

>> WELL DONE MARK AND CAN WE GET
A COPY SPECIFIC PARTICULARLY THE
LAST COUPLE SLIDES.

SO YOU'RE NOT NET ZERO CARBON
YOU'RE NET NEGATIVE 20%.

WELL DONE.

THANK YOU.

MEREDITH.

DID YOU HAVE A PRESENTATION AS
WELL.

>> I DON'T HAVE A PRESENTATION.

THANK YOU FOR HAVING ME.

I'M GOING TO, A LOT OF WHAT'S
BEEN SAID TODAY IS SUPPORTING
WHAT I WANT TO TALK ABOUT.

SO AS MENTIONED, AT UB
MASSACHUSETTS IS IN DRAFT FORM
RIGHT NOW ON ZERO COST
BUILDINGS.

INTEGRAL DISPROOF OUT OF BC HAS
PRODUCED THE CALCULATIONS AND
DONE THE BODY OF THE REPORT FOR
US FROM JACOB AND CHRIS AND
OTHERS, OUR LOCAL, PERTS HERE
AND SOME OF THE PROJECTS WE'VE
HEARD ABOUT CAN OPEN THE
BELLING, OUR REFERENCE TO WITHIN
THE REPORT.

WHAT WE DID, SO I WILL BACK UP
AND SAY ALMOST A YEAR AGO NOT
QUITE A YEAR AGO WE'D A
MUNICIPAL SUMMIT AND 80 PEOPLE
FROM DIFFERENT MUNICIPALITIES
FROM AROUND THE COMMONWEALTH AND
WE ASKED THE NUMBER ONE OBSTACLE
TO GETTING TO ZERO ENERGY
BUILDINGS THEY ALL SAID FIRST
CALL.

SO THE STUDY LOOKS AT THAT AND
WHAT WE'RE SEEING NOW IS THERE'S
A PERCEPTION OF FIRST COST.

WE LOOKED AT SIX DIFFERENT
BUILDING TYPES IN THE
COMMONWEALTH AND WHAT WE FOUND
IS THAT THE FIRST WE NEED TO
REDUCE THE ENERGY, WITH RESO
ENERGY BUILDING.

YOU GOT 50% REDUCTION WHICH IS
HUGE AND THAT'S WHERE THE STUDY
CORRELATES IS THAT ON AVERAGE
WHAT WE LOOKED AT TO GO IS
LOOKING AT THE ENERGY
CONSERVATION MEASURES SO WE CAN
REDUCE ENERGY IN THESE BUILDINGS

40 TO 50% WITH TECHNOLOGIES AND STRATEGIES WE HAVE TODAY. WHAT WE TALK ABOUT IN THE REPORT THERE ARE A LOT OF DIFFERENT FACTORS THAT GO INTO THAT FIRST COST. FROM WHAT JACOB WAS SAYING IS ABOUT THE DESIGN GETTING THE DESIGN TEAM ON EARLY. SOMETIMES THERE'S AN EXCEPTION WHERE YOU HAVE THE DESIGN OF A BUILDING ASK YOU CAN TWEAK WHERE THE EARLIER YOU GET THE DESIGN TEAM ON BOARD AND YOU SAY THIS IS OUR GOAL FROM DAY ONE THEN YOU CAN DO OTHER BECAUSE YOU'RE NOT GOING TO END UP WITH A HUNDRED PERCENT ANALYSIS BUILDING OR MAYBE YOU WILL BUT THAT'S GOING TO COST YOU A LOT MORE MONEY THAN IF YOU RIGHT SIZE THE EQUIPMENT, RIGHT SIZE YOUR CLASS. THE DESIGN TEAM TELLS ME THEY NOTICED THE EXISTING CLASSROOM BUILDING HAD A HUGE LOAD AND THEY WENT THROUGH AND REALIZED IT WAS BECAUSE THERE WERE A LOT OF TOASTERS AND REFRIGERATORS AND HOT MATES IN EACH OF THE CLASSROOM. WHAT THEY FOUND WAS BECAUSE THE BREAK ROOM FOR THE TEACHERS WAS TOO FAR AWAY. IN THE NEW DESIGN OF THE BUILDING, THEYITY SIGNED TEAM ROOMS THAT ARE EASILY ACCESSIBLE FOR THE TEACHERS AND THE MODELING AGAIN THIS IS PRETICKED SAYS THEY'RE GOING TO SHOW JUST 7 PERCENT PERFECT REDUCTION IN ENERGY FROM THITY SIGN OF THE BUILDING. THAT DOESN'T COST ANYMORE TO DO IT'S ABOUT HOW THE SMART DESIGNERS, SMART DESIGN TEAMS HAVING THIS AS A GOAL EARLY ON IN THE DESIGN ASKING THE RIGHT QUESTIONS. WE FOUND THE STUDY LOOKING AT EXISTING BUILDINGS BUILT AND IN DESIGN AND OTHER STUDIES THAT THE FIRST COST CAN GO FROM ZERO TO 7%.

THE NEWER FINDINGS ARE NOT UP TO THE 16 AND ABOVE PERCENT IT'S REALLY ANYWHERE FROM ZERO TO 7% IN MASS TO REDUCE ENERGY. YOU'RE GOING TO HAVE ADDED COSTS IF YOU OWN THE SOLAR ON SITE FROM DAY ONE.

IT WOULD BE ADDED COSTS TO HAVE ARE SURE OWE YOU CAN BE CREATIVE AND HAVE FINANCE THE SOLAR AND THERE'S NO ADDED COSTS FROM DAY ONE AS WELL.

THIS IS A THEME WE'RE HEARING WE NEED TO SHIFT FROM THE DISCUSSION OF THE FIRST COST WE KNOW WE CAN DO THE FIRST COSTS BUT REALLY UNDERSTANDING THE LONG TERM COSTS OF THESE PROJECTS AND LOOK OVER THE LIFE CYCLE OF THESE PROJECTS AND THAT'S WHAT WE'VE DONE IN THE STUDY.

IN EVERY CASE IT MADE FINANCIAL SENSE TO DO THESE PROJECTS IN THAT IT WAS ANYWHERE FROM ONE YEAR PAPERBACK TO BE ZERO ENERGY OR ZERO CARBON IN THE FIRST CASE SCENARIO OF 23 YEARS.

ON AVERAGE IT WAS ABOUT A TEN YEAR RETURN.

THIS TOOK INTO ACCOUNT THE ENERGY SAVINGS.

I TAKES INTO ACCOUNT THE REBATES THAT MIGHT BE AVAILABLE AND ALL. AND THAT WAS ASSUMING OWNERSHIP OF THE SOLAR ON SITE.

I COULD TOUCH A LITTLE BIT ON THE DIFFERENT RATING SYSTEMS AND MANY OF THOSE IS SOMETHING WE COULD TALK B LEAD ZERO IS BRAND NEW.

THERE'S ALSO THE INTERNATIONAL LIVING FUTURE INSTITUTE HAS ZERO ENERGY AND ZERO CARBON ALL THE WAY UP TO LIVING BUILDING CERTIFICATES OR DIFFERENT CERTIFICATES BUT THEY ARE REALLY PATHWAYS TO GET THERE.

I'LL LEAVE MY CALL THERE.

>> THANK YOU VERY MUCH MEREDITH. CANDY, YOU TO HAVE A PRESENTATION AS WELL.

>> I DO.

>> JESSICA IS ON IT AND RON IS

ON IT.

>> THANKS.

I'M GOING TO BRING IT A LITTLE
BIT MORE HIGH LEVEL.

AGAIN THANK YOU TO COUNCILOR
O'MALLEY AND COUNCILOR WU.
IT'S WONDERFUL PARTNERING WITH
YOU GUYS AND ALSO THE WORK WE DO
AT NAPC FOR OUR REGION.

I WANT TO TALK ABOUT HOW OUR
CITY IS LEADING ON CLEAN AIR AND
CLIMATE AND SOME CONTEXT HOW I
SEE POTENTIAL COMMITMENT LIKE
THIS SITTING INTO THE WORK THAT
THE CITY IS DOING AND THAT THE
REGION IS DOING.

WE CAN START ON THE NEXT SHIED.
I MENTIONED WE'RE THE REGIONAL
PLANNING WE SERVE 101 CITIES
BOSTON INCLUDED.

WE'VE BEEN WORKING WITH OUR
CITIES AND TOWNS WITH OUR
REGIONS ON THAT NET ZERO
FRAMEWORK TO REALLY BENEFIT FROM
THE MULTIPLE WAYS THAT ZERO NET
ENERGY AND ZERO NET CARBON CAN
MOVE US TOWARD A BETTER CHILD
FUTURE.

NET ZERO PLANS ARE REALLY WHAT
WE'RE SEEK OUT OF A LOT OF
CITIES AND TOWNS RIGHT NOW.
OBVIOUS ME CARBON FREE BOSTON IS
A WONDERFUL STEP.

THE CLIMATE ACTION MAN WILL TALK
US FURTHER.

CITIES AND TOWNS AROUND NORTH
AMERICA ARE PUTTING THOUGH PLANS
IN ORDER AND WE'RE WE'RE
LEARNING A HOT FROM ART
NEIGHBORS ACROSS THE COUNTRY.

AS MENTIONED HERE TODAY BOSTON
HAS HAD A HISTORY OF SETTING
AMBITIOUS GOALS IN THE MUNICIPAL
SECTOR AS WELL AS BEYOND.

A COUPLE CLICKS FROM THE 2014
CLIMATE UPDATE REFERENCES HOW IT
HAS BEEN AND I THINK 2008 THE
SILVER COMMITMENT AND HOW THE
CITY HAS BEEN LOOKING AT MOVING
THAT FORWARD.

HOW THE MOST RECENT INVENTORY
HAS SHOWN IT'S MET THE MUNICIPAL
RE MISSIONS GOAL FIVE YEARS
EARLY.

THERE'S THIS HISTORY OF BOSTON LEADING ON WORKING TO REDUCE EMISSIONS.

THAT'S SOMETHING THAT I'M EXSUED TO SEE THEM DO GOING FORWARD TO 2030 AND 2050.

ONE OF THE CO-LIKSZ THAT THE CITY IS A PART OF IS THE METRO MAYOR 'S COALITION.

MAPC FACILITATES THIS COALITION AMONG 15 CITIES AND TOWNS IN THE INNER CORE AND WE'VE BEEN WORKING 2015 WITH THESE CITIES AND TOWNS ON CLIMATE.

SINCE 2015 COMING TOGETHER ON CLIMB PREPAREDNESS AND 2016 CLIMATE MITIGATION.

THAT INCLUDES NET ZERO IN THE REGION BY 205.

SO MANY OTHER CITIES AND TOWNS IN THAT REGION HAVE INDIVIDUAL NET ZERO OR CARBON FREE GOALS BY 2050 AS WELL.

AS PART OF THAT TOO WE COMMIT TO NEAR TERM ACTIONS.

BY 2020 EVERYONE IN THE METRO MAYOR'S COALITION IS TO HAVE UPDATED OR PRODUCED FOR THOSE WHO DIDN'T HAVE THE CLIMATE ACTION PLAN BOSTON AS WELL ON THIS WAY AND UNDERTAKING THEY NEW CLIMATE MITIGATION ACTIONS.

THESE A LIST OF 21, A SMALL SUBSET BUT TO HIGH LIE THE MUNICIPAL FACILITY IS A BIG PART OF THAT DMIMENT.

THOSE ARE WAYS TO FULL FELL THAT COMMITMENT WITH CLIMB LITIGATION WAS TO TAKE ACTION.

HERE WE HAVE A CERTIFIED GREEN BUILDING STANDARD.

BOSTON HAS THAT WITH THEIR LEAD VIRILE IN 2007 BUT IF THEY WERE TO ADOPT A NEW NET ZERO CARBON COMMITMENT OR SOMETHING OF THAT LIKE THAT WOULD BE A GREAT WAY TO SHOW LEADERSHIP IN THE MAYOR 'S COALITION AND COMIE WITH, SATISFY ONE OF THOSE OTHER MIT TBAITION ACTIONS THAT THE CITY IS UNDERTAKING BY 2020 AND WOULD FIT WELL INTO THE WORK THAT THE METRO MAYOR 'S COALITION TO WORK TOWARD

REGIONALLY REDUCING OUR CARBON EMISSIONS IN CITIES AND TOWNS. JUST SOME EXAMPLES OF OTHER WAYS WE'RE SEEING THIS. WE'VE SEEN A LOT OF GREAT MANY EXAMPLES ALREADY. WE WORK WITH CAMBRIDGE AND METRO MARCH AS WELL AND LEXINGTON. I JUST WANT TO HIGHLIGHT THE TOWN OF WAYLAND AROUND THIS TIME VOTED IN TIME MEETINGS TO COMMIT THIS CONSTRUCTION TO A VERY HIGH PERFORMANCE STANDARD. THEY DON'T CALL IT NET ZERO CARBON OR ENERGY PER SE BUT IT'S THE SAME STANDARDS OR SAME TYPE OF DEAF ENCUMPPASSES WE'VE BEEN TALKING ABOUT MAKING SURE THEIR -- DEFINITIONS WOULD HAVE BEEN TALKING AND WAS A THE OVERWHELMINGLY IN THEIR TOWN MEETING. IN AMHERST IN WESTERN MASS ABOUT A YEAR AGO THEY REVISED ZERO ENERGY BYLAWS REDUCING ENERGY REALLY TRYING TO PRODUCE MOST OF ANY SORT OF RENEWABLE THAT WOULD OFFSET ENERGY CREW ON SITE AND BRINGING OFFSET ENERGY ONLY IF IT'S NECESSARY TOWARD THE END. AN AMBITIOUS POLICY OUT IN AMHERST. LEAVING THE COMMONWEALTH AND SHOWING OTHER EXAMPLE AROUND THE COUNTRY THE DISTRICT OF COLUMBIA IS JANNA DOPTED A VERY AMBITIOUS PLAN IN MANY DIFFERENT AREAS BUT ONE I WANT TO HIGHLIGHT WAS THE DISK GOVERNMENT BUILDING. IN TALKING WITH THE RETROFIT WHICH HAS BEEN DISCUSSED IN GREAT DEAL IF THAT'S A TOUGH NUT TO CRACK OBVIOUSLY VERY IMPORTANT SINCE WE HAVE EXISTING BUILDINGS. THEY ARE LOOKING TO PUT FORWARD THIS ZERO ENERGY AND THEY COMMITTED TO THIS ZERO ENERGY THE RETROFIT PROGRAM AT LEAST 12 AND-A-HALF PERCENT OF THE DISTRICT'S PORTFOLIO BUILDINGS BY 2032. SANTA MONICA HAS A REAL AMBITIOUS CLIMATE ACTION AND

ADAPTATION PLAN AS WELL.
YOU CAN SEE HERE THE BUDGET
NUMBER THEY PUT FORWARD IN THEIR
CAPITAL IMPROVEMENT PLAN FOR
ZERO NET CARBON BUILDINGS IN THE
MUNICIPAL SECTOR.
REALLY GREAT EXAMPLE.
AND HASLY JUST WANT TO HIGH
HEIGHT REALLY AS A
REPRESENTATION OF THE IMPORTANCE
OF MOVING THAT MUNICIPAL SECTOR
IN ORDER AND A COMMITMENT THAT
C40 HAS PUT OUT RECENTLY.
THEY ARE HAVING CITIES AND TOWNS
AND SOME OTHER STATE-WIDE ARGUES
COMMIT TO ZERO NET BUILDING
ACROSS INDUSTRIAL AND
RESIDENTIAL AND SO ON BUT THEY
HAVE THE SUBSET HAVE A VERY
SMALL AFFAIR, I'M HAPPY TO SHARE
IN MORE DETAIL THE SECOND KIND
OF HIGHLIGHTED AREA THERE IS
TALKING ABOUT MUNICIPAL
BUILDINGS AND COMMITTING THE
ZERO NET CARBON AND THAT SPACE
AS WELL.
I THINK IT'S REALLY NOTABLE THEY
CALL THE REASONS FOR THAT BEING
THE IMPORTANCE OF LEADING BY
EXAMPLE, THE IMPORTANCE OF
PILOTING AND DEPOSITING REALLY
INNOVATIVE PATHWAYS TO GET
THERE, THE IMPORTANCE OF SHOWING
THE MARKET AND OTHER
CONSTITUENTS HOW IT'S POSSIBLE
AND HOW THEY CAN WORK ON IT
TOGETHER AND YOU CAN SEE THE
IMPORTANCE AT THAT SKILL OF
LEVEL.
THIS ISN'T SOMETHING BOSTON
SHOULD BE DOING THAT CAMBRIDGE
AND LEXINGTON AND US ARE
SOMETHING.
SOMETHING WE WANT TO SEE THE MET
TRO REGION AND ACROSS THE STATE
TO REALLY COMMIT TO THESE
AGGRESSIVE CARBON EMISSION
POLICIES.
I'LL STOP THIS.
THANK YOU.
>> THANK YOU VERY MUCH,
APPRECIATE IT.
>> YOU'RE UP.
>> THANK YOU COUNCILOR O'MALLEY

AND COUNCILOR WU FOR YOUR LEADERSHIP ON THIS ISSUE. IT'S NOT ONLY A LEADER ON THIS BUT ALSO MY OWN COUNCILOR. THIS IS A STATEWIDE ORGANIZATION THAT WORKS WITH CHAPTERS AND CITIES AND TOWNS ACROSS MASSACHUSETTS TO HELP THEIR COMMUNITIES BE MORE CLIMATE FRIENDLY AND GIVE THOSE COMMUNITIES A VOICE AT TONE OF THE ISSUES WE'RE WORKING WITH A LOT OF COMMUNITIES ON NET ZERO PLANNING AND WE'VE BEEN WORKING A LOT WITH THE BOSTON CLEAN ENERGY COALITION WHICH YOU MENTIONED EARLIER A COALITION OF GRASSROOTS AND NEIGHBORHOOD GROUPS THAT WANT TO SEE BOSTON GO NET ZERO AND IS CURRENTLY FOCUSED ON ENSURING WE STOP DIGGING A HOLE ON CLIMATE. WHAT I MEAN BY THAT IS OF COURSE THE FIRST BEST GETTING OUT OF THE HOLE IS TO STOP DIGGING. EVERY BUILDING THAT WE BUILD NOW THAT IS NOT NET ZERO IS GOING TO HAVE TO BE RETROFITTED LATER AND THAT IS GOING TO BE EXPENSIVE. MUNICIPAL BUILDINGS ARE PARTICULARLY IMPORTANT THIS AS WAS MENTIONED EARLIER. THE THOUSAND CAN SAVE MONEY AND HELP MEET THE COMMONWEALTH GOALS WHILE DOING THE RIGHT THING ON BUILDING. BY BUILDING ALL NEW MUNICIPAL BUILDING NET ZERO CARBON. THE FACT THAT BUILDINGS ARE THE LARGEST PERCENTAGE OF THE CLIMATE POLLUTION FOR OUR CITY MAKES IT CLEAR WE NEED TO FIX THE WAY WE ARE BUILDING OUR BUILDINGS AND WE NEED TO DO IT NOW. 2018 UN REPORT FROM THE INTERNATIONAL PANEL ON CLIMATE CHANGE SAYS THAT GLOBALLY WE HAVE TO GO NET ZERO BY 2050. THE HERE CITY LIKE BOSTON AND IN A LEADER STATE LIKE MASSACHUSETTS SHOULD BE FOCUSED ON BEATING THAT TIME LINE BY A SIGNIFICANT CHUNK OF TIME.

THE MAYOR'S OWN COMMIT AND THE
CARBON FREE BOSTON MODELING SAYS
NET ZERO BUILDINGS ARE A KEY
PART OF THAT.

WE MUST ADDRESS THE ENVIRONMENT
AND IT'S IMPORTANT TO THE PEOPLE
OF BOSTON THAT THE CITY TO THE
RIGHT THING.

THE CURRENT BUILDING BOSTON
WHICH IS THE THIRD LARGEST EVER
MAKES THIS EVEN MORE PRESSING.
THE CITY NEEDS TO PROVIDE
LEADERSHIP AND APPROVE THIS AS
SOON AS POSSIBLE.

CITY COUNCIL NEEDS TO LEAD
BOSTON AND BOSTON SHOULD BE
LEADING THE STATE.

IN MY WORK ACROSS MASSACHUSETTS
ALTHOUGH THEY DON'T ALWAYS
ADMIT, CITIES AROUND, CITIES AND
TOWNS AROUND MASSACHUSETTS
REALLY LOOK TO BOSTON FOR LEADER
SHIP AND THAT IS TRUE NATIONALLY
AS WELL.

AND THAT'S ONE OF THE MAJOR
REASONS THAT I THINK THE
THOUSAND CAN AND SHOULD LEAD BY
EXAMPLE AND SHOW US BY EXAMPLE
HAVING ALL NEW MUNICIPAL
BUILDINGS BE NET ZERO.

>> THANK YOU CAROL, I APPRECIATE
THAT.

A WEEK AGO TODAY LAST THURSDAY I
HELD THE IRISH RAG PLAYING IN
HONOR OF ST. PATRICK'S DAY.

ONE OF MY COLLEAGUE PUT HIS ARM
AROUND ME AND SAID THANK YOU SO
MUCH YOU HAVE ME ALL REVVED UP
FOR ST. PATRICK'S DAY.

THANK YOU SO MUCH YOU HAVE ME
ALL REVVED UP FOR NET ZERO
CARBON.

THAT'S WHAT I WANT TO VERY SURGE
CHI EXPLAIN WHY THIS IS
IMPORTANT, HOW WE CAN DO IT, THE
BEN FTS ARE.

THE HASTINGS SCHOOL.
HOW MANY STUDENTS IN THE
HASTINGS SCHOOL.

>> 645 STUDENTS.

>> THAT'S A VERY BIG SCHOOL.

WHAT WAS THE TOTAL COST OFFICE
BUILDING, TUNE.

>> \$65 MILLION.

>> THAT'S THE TOTAL COST.

>> YES.

WHAT'S THE COST OF BOSTON ARTS
ACADEMY.

WE'RE DOING GOOD THINGS THIS BUT
IT'S PROBABLY DOUBLE THAT I
WOULD THINK.

>> I DON'T HAVE IT OFF THE TOP
OF MY HEAD.

BRISTOL COMMUNITY COLLEGE WAS
\$30.

>> IS THAT ZERO CARBON.

>> SIGNIFICANT ME CARBON
NEGATIVE ACTUALLY.

>> THAT'S REMARKABLE.

I WANT TO GET SOME QUESTIONS.
MEREDITH YOU TALKED ABOUT SORT
OF AVERAGE OF TEN YEAR RETURN
AND WORST CASE SCENARIO IS 23
YEAR RETURN AND YOU FACTOR INTO
THE REBATES INCENTIVES.

THERE'S A LONG PREAMBLE TO THIS
QUESTION BUT YOU ALL WILL
APPRECIATE IT AND BE AS GOB
SMACKED AS I WAS WHEN I HEARD
THE OTHER NIGHT THE SENATOR WAS
ON TO GO A PRESIDENT SHL
TOWNHALL FORUM IN MISSISSIPPI
GOOD QUESTIONS AND ANSWERS I
DIDN'T BELIEVE WAS TRUE UNTIL I
GOOGLED IT.

THE STATE OF MISSISSIPPI THEY
ARE IMPOSING A TAX ON ELECTRIC
AND HYBRID VEHICLES TO OFF SET
THE LACK OF REVENUE BY A GAS
TANK.

THAT'S ACTUALLY HAPPENING.

MY QUESTION TO YOU MEREDITH IT'S
OFF TOPIC BUT SINCE YOU'RE ALL

HERE I WILL ASK DESPITE THE
INCREDIBLE DAMAGE THAT THIS
ADMINISTRATION IN WASHINGTON IS
DOING TO EVERYTHING INCLUDING
CLIMATE, ARE THIS SOME CONCERNS
AS IT ARE REHATES TO TAX
INCENTIVES THAT THE FEDERAL
GOVERNMENT HAD PROMOTED?

I'M THINKING THIS USED TO BE A
GREAT INCENTIVES FOR ELECTRIC
VEHICLE FOR EXAMPLE IT USED TO
BE A GREAT INCENTIVE FOR THAT.

ARE THOSE THINGS CHANGING, A TWO
PART QUESTION HAVE YOU NOTICED
THAT THE IN YOUR RESEARCH

FEDERAL PROGRAMS DISSIPATING OR
IF NOT TURNED AROUND LIKE
MISSISSIPPI SITUATION.
AND THEN ARE THERE WAYS THAT THE
CITIES CAN BETTER OFFER OUR OWN
INCENTIVES.

>> I MIGHT GIVE THIS OVER TO
JACOB SINCE HE'S INTIMATELY TIED
TO THIS ALTHOUGH A LOT OF THE
REBATES AND ION SENTIVES WE'RE
GET CANNING ARE AT THE STATE
LEVEL AND I THINK THERE IS A LOT
THAT CAN BE DONE EVEN TO FURTHER
IT AT THE CITY, AT THE CITY
LEVEL.

THE REBATE.
REBATES HEM.

>> YOU PROBABLY NOTICE ON THE
TIME LINE FOR THE SOLAR DRAW
DOWN.

>> YES.

THE SOLAR INCENTIVES HAVE A FIVE
YEAR SUNSET ON ITC CREDIT FOR
BOTH RESIDENTIAL AND COMMERCIAL.
BUT I THINK YOU'RE EXACTLY RIGHT
IN TERMS OF LOOKING LOCALLY.
WHEN WE LOOK AT HASTINGS SCHOOL
AND THINGS THAT WE'RE ABLE TO DO
FOR HASTINGS SCHOOL, THOSE
INCENTIVES ARE COMING FROM THE
STATE HELL.

SO WE HAVE THE SMART SOLAR
ENERGY PROGRAM WHICH IS
PROVIDING INCENTIVES NOT ONLY
FOR THE SOLAR BUT FOR ENERGY
STORAGE PORTION OF THE RAISE
WE'RE PUTTING UP.

WE HAVE A GRANT FOR THE GROUND
SOURCE HEAT PUMPS.

THE ADMINISTRATION AT THE D.
OMPLEGHTS E.R. LEVEL HAS THE
STANDARD PORTFOLIO IN PLACE
WHICH IS ALLOWING A PRODUCTION
INCENTIVE FOR THE LIFE OF THE
GROUND SOURCE HEAT PUMP FOR
EVERY KILOWATT HOUR OF HEAT YOU
PROVIDE WITH THE GROUND SOURCE
HEAT PUMP YOU'RE GETTING AN
INCENTIVE FROM THE STAT.

WE'RE MAKING MONEY BY HEATING
OUR SCHOOLS WITH THE GROUND
SOURCE HEAT PUMP.

>> IT'S AN, SIGHTING OPPORTUNITY
AS YOU A SCRIBED FOR THE

ALTERNATIVE CREDITS AND THERE CAN BE SIMILAR PROGRAM IN PLACE WHERE YOU CAN BUILD UP EXISTING STRUCTURES TO STAY THAT MAYBE YOU CAN HAVE THE SEVEN NEXT MOTHER PLAYER IF YOU'RE A ZERO NET AND A FIVE X MULTIPLIER IF YOU'RE NOT.

YOU'RE STILL PROMOTING EFFICIENCY FOR EVERYBODY BUT YOU GET A BONUS IF YOU GET ALL THE WAY TO CARBON NEUTRAL.

WE'RE TRYING TO WORK WITH THE UTILITIES AND CHANGING THEIR PROGRAMS SO THAT WHEN YOU FEEL A SWITCH TO HECK TRICK, YOU CAN STILL MAXIMIZE YOUR INCENTIVE EVEN THOUGH A LOT OF THE INCENTIVES COME FROM REDUCING SO WE'RE WORKING ON USING THE CHELSEA POTENTIALLY A PILOT FOR A NEW STRUCTURE THAT WOULD TAKE ADVANTAGE WHAT ARE THE REAL ENVIRONMENTAL BENEFITS TO THE SYSTEM.

>> TO THE ALTERNATIVE ENERGY CREDITS IF YOU HAVE A SMALL SYSTEM IN THAT SMALL COMMERCIAL AS WELL YOU CAN GET THE CREDITS SO IT CAN OFFSET THE INITIAL COST AND CAN BRING DOWN THE CORRESPOND OF BUILDING THE BILL .

BUILDING.
YOU WOULD GET THOSE CREDITS OVER A LIFETIME.

>> THE COMMON WELL HAS A GOOD INCENTIVE AND REBATE PROGRAM AND THERE'S SOME ADDITIONAL FUNDING COME IN THE HAS COUPLE OF MONTHS.

SO THERE ARE STILL REBATES FOR RESIDENTS TO THE PROGRAM. I THINK THE STATE IS LOOKING TO CAP THOSE SO IF YOU'RE BUYING SOMETHING EXPENSIVE YOU MIGHT NOT GET THE REBATE FROM MOST EB'S THAT ARE BEING PURCHASED CHARGING AND THOSE TYPES OF REBATES THOSE ARE STILL AT THE STATE LEVEL.

>> DO YOU KNOW WHAT PROFESSIONALS CARE ABOUT? SQUARE FOOTAL.

AGE.I WAS TALKING WITH SETH EARLIER ABOUT THE ZONING REGULARS TO ALLOW HIGHER FAR AND HIGHER RESTRICTIONS FOR ENERGY BUILDINGS THAT ARE GETTING OUT AHEAD OF THEIR TIME LINE.

THAT'S A BIG DEAL OR TYING TO REZONE A SITE FOR HIGHER DENSITY AND YOU NEED MUNICIPAL BUY-IN TO ALLOW THAT TO OCCUR THERE'S A LEVERAGE POINT FOR YOU TO SAY HOW DEVELOPER WE THINK YOU SHOULD ALSO BE PURSUING BARB NEUTRAL AS PART OF YOUR BENEFITS TO THE COMMUNITY.

>> HEY THERE'S NO QUESTION THAT IN LARGE BENEFIT FROM OUR WORK, THE WORKING SESSION WITH MANY PEOPLE IN THIS ROOM IS OFTEN TIMES WHEN A NEW DEVELOPMENT WILL COME TO OUR NEIGHBORHOOD OR OBVIOUSLY THE ENTIRE CITY THERE WILL ALWAYS BE A PUSHED FOR INCREASED AFFORDABILITY ON SITE. VERY VERY IMPORTANT.

THERE COULD BE OTHER PUSHES FOR OTHER COMMUNITY WITHIN FITS. THE COMMONALITY FOR EXAMPLE THAT OUR CIVIC ASSOCIATION COULD USE. WE'VE MADE A RAIL PUSH GETTING ON IT OR CLOSE TO IT AND WE HAD A LARGE VICTORY IN WEST ROXBURY WITH 250 UNIT BUILDING ALL ELECTRIC.

NOT QUITE AT NET ZERO CARBON SO WE CONTINUE TO PUSH.

AS IT RELATES TO MORE MUNICIPAL BUILDINGS I WOULD CHARACTERIZE THE ADMINISTRATION'S RESPONSE VERY SUPPORTIVE OF IT.

WANTED TO MAKE SURE THAT WE'RE ABLE TO LOOK AT OTHER FACTORS AND CODIFY CHANGES GOING FORWARD.

THERE'S ALWAYS THE CONCERN ABOUT COST OUT OF A PERCEPTION OF FIRST COSTS OR THE ACTUAL COSTS. I GUESS WHAT WOULD BE SOME OF YOUR REMARKS TO SORT OF -- THEY WANT TO DO THE RIGHT THING BUT ARE WORRIED ABOUT COST.

>> THIS IS THE EXACT QUESTION YOU GET WHEN YOU START TALKING ABOUT PUTTING A NET ZERO

BUILDING UP HOW MUCH IS IT GOING TO COST AND WHAT'S THE PAY BACK TIME.

WHAT WE'VE SUGGESTED IN LEXINGTON THAT'S PROBABLY THE WRONG WAY TO LOOK AT IT. HOW MANY BUY A HOUSE OR SCHOOL WITH CASH UP FRONT? NOBODY.

WE BUY A HOUSE, WE FINANCE IT. WE GO OUT FOR A BOND AND THE INTERESTING THING IS WHEN YOU BEEN LOOK AT THE COST OF THE GROUND SOURCE HEAT PUMP THAT WE PUT IN THAT'S AN INCREMENTAL COST OVER CODE BUT IF YOU HOOK AT WHAT THAT INCONTROLLAL COST IS IN TERMS OF -- INCREMENTAL COST IN TERMS OF THE ACTUAL PAYMENTS YOU'RE MAKING ON YOUR DEBT SERVICE.

WHAT WE FOUND IS THAT WE WERE SAVING MORE ENERGY THAN WE WERE COSTING OURSELVES AND OUR DEBT SERVICE.

SO WE'RE SAVING \$400,000 ON ENERGY AND MONEY FROM THE STATE AND THE GROUND SOURCE HEAT PUMP IS \$50,000 SO WE'RE AHEAD OF THE GAME FROM THE VERY FIRST DAY WE'RE SUGGESTING EMPLOYABLE THE WRONG WAY TO SETTLE A NET ZERO SYSTEM IS TO TALK ABOUT FIRST COST AND 5 YEAR PAY BACK BUT PROBABLY THE RIGHT WAY TO TALK ABOUT IT IS WHAT'S MY ACTUAL COST TO THE TAXPAYER.

THE COST TO THE TAXPAYER IS THE DEBT SERVICE AND THE OPERATING COST OPERATING THAT BUILDING. IF YOU LOOK AT THOSE TWO THINGS TOGETHER IF YOU DO THE DESIGN WITH A GOOD ENGINEERING FIRM UP FRONT YOU WILL FIND YOU WILL BE NET ZERO AND YOU WILL BE CASH FLOW POSITIVE FROM THE FIRST DAY YOU TURN THAT BUILDING ON. NOW.

>> I LIVE IN BELMONT AND WE'RE BUILDING A NEW 400,000 QUESTIONNAIRE SPHOAT \$300 MILLION HIGH SCHOOL AND PARTIAL JUNIOR HIGH.

