# *Instructions*

*Use this template to quickly develop a post-charrette report to share with attendees shortly after the convening. The template provides a framework and standard language where possible but must be customized with your project’s details before sending it to attendees.*

*This template is the last of three templates developed to support the charrette process: pre-read, slides, post-charrette report. The three are designed to work together. The intent of the post-charrette report is to memorialize takeaways and facilitate aligned across stakeholders on project goals, retrofit trigger events, and the scope of the initial retrofit plan. It is recommended the document remain as concise as possible and is sent to attendees within a few days of the charrette while it is still fresh in everyone’s memories.*

*Instructions within the template assume a Microsoft Word document is shared with “track changes” enabled. If you distribute the document differently (email a local version) or use another software solution, please update the instructions.*

*There are three formats of text used in this template:*

* *Instructions: Italicized grey text (such as this) provides guidance for customizing the pre-read template for your project. This text is intended to be deleted prior to distribution to charrette attendees.*
* *Placeholder text: Content in square brackets and blue font is a place holder that should be updated with project-specific information prior to distribution.*
* *Standard language: The remainder of the text can be customized or retained as-is.*

Post-Charrette Report: [Building Name]

# Intro

This report documents insights and feedback collected during the [building name] design charrette that occurred on [weekday, mm dd, yyyy]. It also provides a framework for attendees to comment on the takeaways to ensure the team is aligned and ready for next steps.

# Next Steps

* Please provide feedback on this post-charrette report by [mm/dd]. [This is a shared Microsoft Word document. Please use the shared version (not a local copy), highlight the text where you want to provide feedback, and use the Insert>Comment feature in Microsoft Word.]
* The design team will respond [within the shared document’s comments] until they are all resolved, and the team is aligned.
* The design team will review charrette recommendations and basis of design modifications and describe the rationale behind incorporating or rejecting all or part of the recommendations.
* The design team will complete energy and financial analysis and leverage results to refine the retrofit scope to meet project goals.
* A second charrette to review design recommendations with GHG emissions and NPV calculations will be scheduled and will occur before [mm/dd]. The design team will schedule this meeting nearer to [mm/dd].

# Charrette Attendees

*Start with the table included in the pre-read document and adjust as needed to reflect stakeholders that attended the charrette.*

The following stakeholders attended the event.

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Organization** | **Role** | **Email** |
| [Name] | [Org name]  | [Facilitator] | [Email address] |
| [Name] | [Org name]  | [Facility Manager] | [Email address] |
| [Name] | [Org name]  | [Asset Manager] | [Email address] |
| [Name] | [Org name]  | [Building Chief Engineer] | [Email address] |
| [Name] | [Org name]  | [Sustainability Manager] | [Email address] |
| [Name] | [Org name]  | [Architect] | [Email address] |
| [Name] | [Org name]  | [Mechanical Engineer] | [Email address] |
| [Name] | [Org name]  | [Electrical Engineer] | [Email address] |
| [Name] | [Org name]  | [Structural Engineer] | [Email address] |
| [Name] | [Org name]  | [Energy Modeler] | [Email address] |
| [Name] | [Org name]  | [Controls Contractor] | [Email address] |
| [Name] | [Org name]  | [Commissioning Agent] | [Email address] |
| [Name] | [Org name]  | [Utility Representative] | [Email address] |
| [Name] | [Org name]  | [Thermal Energy Network Representative] | [Email address] |
| [Name] | [Org name]  | [Tenant] | [Email address] |
| [Name] | [Org name]  | [Tenant] | [Email address] |
| [Name] | [Org name]  | [External Expert – Heat Pumps, Thermal Storage, Energy Recovery, etc.] | [Email address] |
| [Name] | [Org name]  | [External Expert – Building Envelope] | [Email address] |
| [Name] | [Org name]  | [External Expert – Case Studies] | [Email address] |

# Project Goals

*Copy the goals table presented during the charrette and paste into this report. Summarize feedback provided during the charrette in the “Raw Feedback collected during charrette” section. Edit the goal table while ensuring Review>Track Changes is active in Microsoft Word so the rest of the team will be able to see how the table has been modified since it was presented at the charrette. If using another software adjust accordingly.*

*An example is provided in the upper right cell with blue text. If there were no recommended changes shorten this section stating the team came to consensus during the charrette that the goals will be retained as-is.*

## Raw Feedback collected during charrette

The following feedback about project goals definition was collected during the charrette:

* [Use energy and financial analysis to determine intermediate CO2 emissions target. 50% by 2030 may not be correct.]

## Recommended Adjustments

The table was presented during the charrette but has been modified to address the feedback above. In [Microsoft Word ensure “All Markup” is selected in the “Review” options to ensure you can see edits].

|  |  |  |
| --- | --- | --- |
| **Goal** | **Metric** | **Target** |
| [Reduce CO2 emissions] | [Scope 1 Emissions] | [ To be defined during second charrette after energy and financial analysis is complete] |
| [Reduce CO2 emissions] | [Scope 1 Emissions] | [100% reduction by 2025] |
| [Return-on-investment] | [Overall retrofit package NPV] | [Positive, 8% discount rate] |
| [Improved asset value] | [Net Operating Income (NOI) ] | [5% increase] |
| [Indoor Environmental Quality] | [Outdoor Air Ventilation Rate] | [30% above code compliance] |
| Goal | Metric | Target |
| [Reduce CO2 emissions] | [Scope 1 Emissions] | [50% reduction by 2030] |
| [Reduce CO2 emissions] | [Scope 1 Emissions] | [100% reduction by 2025] |
| [Return-on-investment] | [Overall retrofit package NPV] | [Positive, 8% discount rate] |
| [Improved asset value] | [Net Operating Income (NOI) ] | [5% increase] |
| [Indoor Environmental Quality] | [Outdoor Air Ventilation Rate] | [30% above code compliance] |

# Trigger Events

*Follow the instructions provided in the Project Goals section above but adapt to Trigger Events.*

## Raw Feedback collected during charrette

The following feedback about trigger event definition was collected during the charrette:

* [Use energy and financial analysis to determine intermediate CO2 emissions target. 50% by 2030 may not be correct.]

## Recommended Adjustments

The table was presented during the charrette but has been modified to address the feedback above. In [Microsoft Word ensure “All Markup” is selected in the “Review” options to ensure you can see edits].

|  |  |  |
| --- | --- | --- |
| **Event Scope** | **Event Type** | **Anticipated Date** |
| [Steam boilers 1 & 2] | [End-of-life] | [ 2038] |
| [Roof top unit – ACME tenant] | [End-of-life] | [2028] |
| [Cooling towers 1 & 2] | [End-of-life] | [2030] |
| [Emergency diesel generator 1] | [End-of-life] | [2032] |
| [Building controls maintenance contract] | [Contract end] | [2030] |
| [Windows – All] | [End-of-life] | [2035] |
| [Roof membrane] | [End-of-life] | [2028] |
| [ACME - tenant] | [Tenant turnover] | [2027] |
| [Prodigy - tenant] | [Lease end] | [2027] |
| [Lobby and 1st floor common areas] | [Gut rehab] | [2029] |

# Feedback on “Reduce” Elements of Proposed Retrofit Plan

*Follow the instructions provided in the Project Goals section above but adapt to Feedback on “Reduce” Elements of Proposed Retrofit Plan.*

## Raw Feedback collected during charrette

The following feedback about “reduce” elements of the retrofit plan was collected during the charrette:

* [Expand LED retrofit to other common areas.]
* [Increase roof insulation when membrane is replaced.]

## Recommended Adjustments

The table was presented during the charrette but has been modified to address the feedback above. In [Microsoft Word ensure “All Markup” is selected in the “Review” options to ensure you can see edits].

|  |  |  |
| --- | --- | --- |
| **Retrofit Type** | **Retrofit Rationale** | **Existing Conditions** |
| [Over cladding with additional insulation and air-sealing] | [Façade end-of-useful life 2030] | [Original brick walls] |
| [Windows] | [Comfort, aesthetics] | [Single pane, heavily tinted] |
| [Common area LEDs and lighting controls] | [Inefficient lighting] | [Florescent lighting controlled by timers] |
| [Active building pressure control] | [Pressurization issues from stack effect causing excessive infiltration and occupant issues at doors] | [No active pressure control] |
| [Increase roof insulation] | [Roof membrane replacement provides an opportunity for cost effective increase in insulation] | [~R20 continuous insulation] |

# Feedback on “Reconfigure” Elements of Proposed Retrofit Plan

*Follow the instructions provided in the Project Goals section above but adapt to Feedback on “Reconfigure” Elements of Proposed Retrofit Plan.*

## Raw Feedback collected during charrette

The following feedback about “reconfigure” elements of the retrofit plan was collected during the charrette:

* [Concerns raised about potential disruption if existing system space heating water supply temperature cannot be lowered sufficiently to accommodate currently planned heat pump technology.]

## Recommended Adjustments

The table was presented during the charrette but has been modified to address the feedback above. In [Microsoft Word ensure “All Markup” is selected in the “Review” options to ensure you can see edits].

|  |  |  |
| --- | --- | --- |
| **Retrofit Type** | **Retrofit Rationale** | **Existing Conditions** |
| [Adapt hot water distribution for lower temperatures – test lower temperatures, replace coils as neededEvaluate a second scenario that retains 180°F supply temperature with a high-temperature heat pump.] | [Enables more efficient heat pump options] | [180°F for space heating] |
| [Decouple ventilation from heating and cooling (DOAS)] | [Excessive simultaneous heating and cooling] | [VAV with reheat and pneumatic zone control] |
| [Electric infrastructure expansion] | [Mechanical room does not have enough capacity to power a central heat pump] | [Sized for natural gas boilers] |
| [Exploration: exchange heat with 124 First Street] | [Neighboring building has higher level of waste heat] | [No connection] |
| [Adapt hot water distribution for lower temperatures – test lower temperatures, replace coils as needed] | [Enables more efficient heat pump options] | [180°F for space heating] |

# Feedback on “Recover” Elements of Proposed Retrofit Plan

*Follow the instructions provided in the Project Goals section above but adapt to Feedback on “Recover” Elements of Proposed Retrofit Plan. This section provides a variation from previous sections where the team did not provide feedback on the “recover” elements. The table from the charrette is still presented, but not edited, so that the team can add comments as needed.*

## Raw Feedback collected during charrette

The following feedback about “recover” elements of the retrofit plan was collected during the charrette:

* [No recommendations for changes to the “recover” portion of the plan were made during the charrette.]

## Recommended Adjustments

The table was presented during the charrette. No feedback has been made on this topic, so the table has not been edited. Add comments to the table if you have feedback on any of the scope items.

|  |  |  |
| --- | --- | --- |
| **Retrofit Type** | **Retrofit Rationale** | **Existing Conditions** |
| [Enthalpy wheel for air-side energy recovery in new DOAS] | [Reduced energy to temper ventilation air, reduce heating/cooling capacity] | [No air-side energy recovery] |
| [Wastewater – Sewer] | [Increase heat pump source temperature] | [n/a] |
| [Condenser water loop] | [Increase heat pump source temperature] | [Existing condenser water loop, but no heat recovery] |

# Feedback on “Replace” Elements of Proposed Retrofit Plan

*Follow the instructions provided in the Project Goals section above but adapt to Feedback on “Replace” Elements of Proposed Retrofit Plan.*

## Raw Feedback collected during charrette

The following feedback about “replace” elements of the retrofit plan was collected during the charrette:

* [No recommendations for changes to the “replace” portion of the plan were made during the charrette.]
* [The concerns raised about lowering space heating supply water temperature impact “replace” elements, which is reflected in the edits to the table below.]

## Recommended Adjustments

The table was presented during the charrette but has been modified to address the feedback above. In [Microsoft Word ensure “All Markup” is selected in the “Review” options to ensure you can see edits].

|  |  |  |
| --- | --- | --- |
| **Retrofit Type** | **Retrofit Rationale** | **Existing Conditions** |
| [Option A – Space heating: Central heat pump, partial electrification. Evaluate heat pumps supplying a lowered water temperature (e.g., 140°F) and heat pumps supplying 180°F.] | [Use existing hot water distribution and mechanical room with back up for redundancy and peak days by retaining one of the existing natural gas hot water generators] | [Three natural gas hot water generators producing 180°F] |
| [Option B – Space heating: Distributed WSHP with common loop connected to cooling tower and small central heat pump] | [Higher efficiency and improved comfort from new distribution and terminal units. Reduces simultaneous heating and cooling between zones.] | [Same as above] |
| [Domestic hot water heat pump] | [Decouple space heating and domestic hot water systems and optimize operation of each] | [Heat exchanger from space heating distribution] |

# Feedback on Other Elements of Proposed Retrofit Plan

*If feedback was provided during the charrette that does not fit into the above framework use this section to document and propose adjustments to the plan.*

## Raw Feedback collected during charrette

[ ]

## Recommended Adjustments

[ ]