



GHI Pipe Repair / Refurbishment Pilot Program

2022 Report Presented by the GHI Buildings Committee



Foreword

“Plumbing – that little thing between the Middle Ages and Modernity”

- Unknown

“Prunus domestica”

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Executive Summary

The Buildings Committee recommends to the Board that staff should organize and conduct a plumbing repair and refurbishment pilot program on between 24 and 32 units to test technology alternatives to ‘hard pipe replacement.’

Purpose: The primary purpose of this pilot program is to trial the pipe repair and refurbishment techniques associated with the technology alternatives recommended, alongside a ‘control group’ of homes with hard pipe replacement to determine whether there are savings in materials and installation costs. This pilot will also help to inform the BoD and staff of member impacts related to displacement and to illuminate challenges and opportunities related to communicating with, compensating, and working directly with members. The pilot program will also provide staff a sampling of pipes to examine to help determine the overall condition of GHI’s plumbing infrastructure.

Significance: The supply pipes in masonry homes, and the waste pipes in all GHI homes, are approaching the end of their useful life and must be replaced or refurbished. If and when the pipes fail, it is very expensive and arduous to repair - more so than planned corporate replacement. Members can not opt out of pipe replacement because of the potential impact of pipe failures on neighboring units and GHIs historic homes. Unlike the HIP, members cannot remain in their homes during pipe repair and refurbishment, as it necessitates turning off both supply and waste services. This will likely result in greater considerations related to member displacement.

Technique: The techniques recommended by the Buildings Committee involve inspecting and thoroughly documenting member kitchens, bathroom, and wet wall areas; removing cabinetry and countertops in the way of pipe infrastructure; and cutting a hole in the wet wall dry-wall to gain access to the pipes. The technology alternatives proposed are: using PEX Grade A water supply pipe, lining waste pipes that are in acceptable condition rather than replacing them, and using PVC pipes in the interior of the unit. Water shut off valves as well as electrical inspection and limited repair are also discussed.

Timeline: The Buildings Committee recommends designing the pilot program in Summer of 2022; surveying, selecting, and communicating with pilot participants in early Fall of 2022; and conducting the repair/refurbishment work through Spring of 2023. Gathering feedback from members, as well as reassessing the replacement reserves related to expected costs, would follow completion of the pilot program.

The Buildings Committee has provided a recommended scope of work, next steps, and several proposed attachments at the end of this document to better help the BoD understand the context surrounding the recommendations contained herein.

Purpose

The purpose of the proposed GHI Pipe Replacement/Refurbishment Pilot Program (GPRP) is to test methodologies for repairing and refurbishing water and waste pipes in GHI units, trial solutions for member displacement related to plumbing system replacement/refurbishment and make certain associated repairs.

Specifically, this Pilot Program would be designed to:

1. Determine effective methodologies for replacing and/or refurbishing existing piping, which has now reached or passed its projected useful life;
2. Identify technical and process solutions to improve the outcome of the GHI-wide replacement/refurbishment project;
3. Identify problem areas, both technical and member-related, and develop effective solutions;
4. Accurately identify and control the cost of the work;
5. Gauge and improve member experiences during the entire replacement/refurbishment process.

This Pilot Program would involve replacement/refurbishment work only, with no new construction or upgrading included. It is GHI's understanding that City of Greenbelt, Prince George's County, and WSSC permits are not required when doing repair work on our own property.

This Pilot Program is meant to be exploratory, meaning broader plumbing repair and refurbishment work would be informed by the outcome of this program, but would not necessarily match exactly in either scope, technique, or procedure.

Required Information

The Pilot Program is designed to obtain information that GHI staff and leadership can use to structure the scope and organization of the eventual broader water and wastewater pipe replacement/refurbishment work in the majority of GHI units. Specifically, the work conducted during the Pilot Program should be observed and the information collected recorded to help address the following categories of questions:

Member Impacts

1. What is the typical duration of work that directly impacts the member's use and safe access to their living space, including the necessary demolition and renovation of interior spaces in units?
2. Do hanging and/or floor cabinets, or countertops in the downstairs kitchen need to be removed? If so, is this true in all cases? If not in all cases, what factors are helpful to determine ahead of time whether cabinets must be moved - and how should that be communicated to the member ahead of or during the pipe replacement?
3. Is the need to remove hanging and/or floor cabinets in kitchens the same for each of the units sharing the wet wall?
4. After refurbishment/replacement, will the member experience their unit any differently than before the work?
5. What kind of unexpected delays or impacts were encountered during the Pilot Program and how can these delays and/or impacts be mitigated or planned for during the larger replacement work?
6. Were there ancillary impacts, such as mold remediation, structural repairs, or other house system repairs during the Pilot Program? What contacts, contract vehicles, inspection tools, or protocols would have been useful to have in place to lessen and/or address any ancillary impacts?
7. Is it feasible to house members in GDC apartments rather than in local hotels for the duration of the replacement/refurbishment work? If members are housed in GDC apartments, what entity would be responsible for cleaning in between the members occupying the apartments? What would be the financial arrangement between GHI and GDC for housing members in GDC apartments?
8. What is the best way to compensate members for alternate accommodations in hotels? Reimbursement based on submitted bills? Provision of vouchers for a determined set amount? Direct billing of GHI by the selected hotel housing the member?
9. For hotel stays, is there an upper limit on the amount that GHI would compensate the member for? If so, how will this value be calculated? For example, will this value be based on US Government per diem rates or negotiated rates with various area hotels?
10. To what extent are there members who do not require reimbursement/payment for alternate housing (e.g., staying with family members, friends, etc.)?

11. Is there an expectation for members staying with family members, friends, etc. for some type of reimbursement for inconveniences?
12. Is it possible to include contract language explicitly requiring preservation of existing materials?
13. Is it realistic to cover the costs of replacing aging/broken associated fixtures, etc. connected to the piping being replaced/refurbished from the replacement reserves?
14. What are the difficulties of restoring kitchens and bathrooms given the great diversity in kitchen countertops, cabinets, tiling, etc. in GHI units?
15. If cabinets, tiles, countertops, etc. are damaged during the pipe replacement/refurbishment work, how realistic is it to replace the damaged materials exactly given the fact that some of the existing materials may no longer be available?
16. Is it realistic to install custom items in a kitchen or bathroom at a member's request and expense after the wet wall is repaired post pipe replacement/refurbishment?
17. Should GHI have a number of cabinets on hand to have as a default available for replacements or new installations?
18. Does the process of opening up wet walls during the pilot reveal that broader pipe repair/refurbishment could safely and effectively happen with only one opening per wet wall side?
19. Should member access be prevented in total, or are there circumstances where a member could use parts of their home, including wifi/storage/yard etc... ? What legal liabilities are associated with member access?

Execution Technique

1. How large of a wall opening (hole/footprint) is required to replace the water supply and wastewater piping in wet walls and what is the degree of flexibility in its placement on the wall
 - a. For upstairs?
 - b. For downstairs?
2. Will masonry home wet walls be replaced with masonry (plaster) or with drywall, and is there a difference in cost associated with the material / technique used in replacement?
3. Is there an ideal or 'preferable' sequencing of work in a row of units that could be consistently implemented during the GHI-wide project?
 - a. What piping should be replaced/refurbished first, second, etc.?
 - b. Are there piping systems that can be worked on simultaneously?
 - c. Are there piping systems that can not be worked on simultaneously?

4. Are there additional issues associated with those units that have downstairs bathrooms? What are these issues and how are they best addressed? What effect does the presence of a downstairs bathroom have on the length of time needed to complete the work and the overall cost as compared to those units without downstairs bathrooms?
5. Are there any difficulties associated with piping interfaces between the replaced/refurbished piping and the existing exterior water supply lines and wastewater laterals?
6. What repeatable processes can be followed to ensure accurate and timely disconnection from utilities and are there lead times required for GHI staff to incorporate this disconnection into planning?
 - a. Lead times involved in 'giving notice' to disconnect a row from water and sewer.
 - b. Lead times involved in 'waiting for utility services' to be returned to normal for rows.
7. Is the systemic addition of water shut-off valves (interior) in units that currently lack them feasible to add, in terms of cost and complexity, to the planned scope of work for pipe replacement/refurbishment given that this work is not currently included in the replacement reserves estimate? If not feasible, is the addition of water shut-off valves (interior) a realistic option to offer members at their expense?
8. Is the systemic addition of insulation in the wet walls between units feasible to add, in terms of cost and complexity, to the planned scope of work for pipe replacement/refurbishment given that this work is not currently included in the replacement reserves estimate? If not feasible, is the addition of wall insulation a realistic option to offer members at their expense?
9. What documentation will GHI management need to secure from city, county, and WSSC authorities that the proposed pipe replacement/refurbishment work will not require the need for additional upgrades to meet more stringent codes?
10. Were units able to be inspected ahead of work to assess the state/location of pipes needing replacement versus refurbishment? Did the inspection appreciably benefit the replacement/refurbishment work?
11. Was WSSC reliably timely in shutting off/turning on utility services?
12. What is the final action that must be taken before the members can reoccupy their unit (e.g., county/city inspection and signoff on work performed)?
13. Should a Board policy be developed to cover alternative accommodations, allowances, limitations, and other topics before the Pilot Program begins? What revisions/modifications to the policy will be needed as a result of the information gathered during the Pilot Program?
14. Does GHI leveraging the right of first refusal to purchase GHI homes listed for sale enable cost savings (and other benefits) over providing hotel / housing vouchers to displaced members? Additionally, can GHI purchase units outright in preparation for member displacement resulting from plumbing repair / refurbishment. This would likely involve a cost/benefit analysis.

Expense and Risk

1. What are typical actual costs of pipe replacement/refurbishment using the techniques recommended in terms of:
 - a. Direct labor hours
 - b. Permitting and other soft costs
 - c. Design and planning
 - d. Mitigating ancillary effects caused or discovered by the plumbing work?

2. Were the differences in cost different enough between the various alternative technology methodologies to warrant inclusion of the alternatives in the GHI-wide pipe replacement/refurbishment?
 - a. PEX
 - b. Waste pipe lining
 - c. Use of PVC in water supply piping.

3. Can expenses be limited by establishing at least a partially standard method of operation?
 - a. By eliminating a certain permit step (PG county permit based on drywall).
 - b. An order of pipes being replaced that is more cost effective than others?

4. Will pipe replacement / repair / refurbishment efforts external to GHI impact the proposed scope of work, or cause damage or additional costs associated with our own repairs?
 - a. Would delaying or otherwise restructuring GHI pipe repair / refurbishment work avoid these impacts?
 - b. Can cooperation / communication with WSSC or other involved entities avoid duplication of effort, given the long time frame of replacement?

5. Can GHI staff establish a simple, reasonable, and defensible framework for establishing limits on 'additional expenses' for a unit that is having its plumbing repaired.
 - a. If major issues are discovered such as mold, water damage, or structural damage.
 - b. If a unit's plumbing requires significantly more impact to the kitchen, bathroom, and wet-wall areas than anticipated or initially communicated
 - c. If a member's displacement exceeds the expected duration for extraneous circumstances.
 - d. Should a written framework of 'how to address unforeseen costs' be approved by the BoD, or left up to GHI's expert technical staff?

The committee emphasizes that the pilot program and broader pipe repair / refurbishment work will be paid for by the replacement reserves - and that a major part of this pilot program is identifying whether or not the reserves have enough to pay for the relevant work for the broader cooperative. Ancillary work that is done simultaneously with plumbing pilot work should be accounted for properly as maintenance costs, e.g., mold remediation, drywall or structural repair, etc., not automatically attributed to pilot level costs.

Communications

Clear and upfront communications between GHI staff and participating members will increase the chance of success in the Pipe Replacement/Refurbishment Pilot Program, as demonstrated by concerted effort to communicate during the Homes Improvement Project (HIP).

Communications should be designed to be two-way, meaning that members of the Pilot Program should be able to express concerns, preferences, and questions to GHI staff. Having a technically knowledgeable staff member with good communication skills take the lead on interacting with members will greatly facilitate the success of the Pilot Program. The scope of the Pilot Program is such that working with other committees, such as the Communication Committee and Architectural Review Committee, will enhance GHI's chances for a successful Pilot Program. Good intra-committee and Board communication will also be key to the success of the Pilot Program.

Some of the topics the Pilot Program will help elucidate and that will require communication to members are listed below. These topics are not presented in any particular order.

- Timing, scope, and cost of Pilot Program.
- How will units be selected for participation in the Pilot Program?
- What is the actual work being done?
- Appropriate lead times for notifications on different phases of work.
- What accommodations will be available and for how long will members need to be temporarily displaced from their units while work is done?
- How will the Pilot Program work impact their kitchens and bathrooms?
- How will these rooms be restored to a satisfactory condition?
- What extra costs, if any, will members need to pay?
- Who will be the lead GHI contact person for members to call/email?
- Other topics needed to be communicated with members.
- Clear direction to members about which parts of their home, exactly, they will not have access to - and whether member action is needed to protect valuables or certain elements of their unit. Should this also involve changing the locks?
- Establishing ahead of time, and communicating clearly the incentives needed to draw enough co-located volunteers for the pilot program.
 - Does volunteering to the pilot enable broader flexibility of where / how pipes are repaired / refurbished? Can we even offer that and still call this 'repair' work instead of new construction, which brings in the county / city / wssc permitting requirements (We previously dodged).

Key Context

As the units that comprise GHI age, so do the pipes that supply water and remove waste in those units. The masonry units have the original supply and waste pipes from the 1930s, while the frame unit's waste pipes date to the 1940s (the supply pipes were replaced in the 1980s). These aging pipes have begun to fail more frequently as their useful life dwindles. These failures are expensive, messy and disruptive. Additionally, such failures often cause "flooding" or water damage that is more expensive to cover by both GHI and a member's H06 insurance policy.

It is important that GHI acts uniformly and efficiently across the co-op to replace these aging pipes. Replacing the necessary pipes in units at the same time is more cost-effective than waiting for an opportune time for each individual member. It is certainly better than waiting for failures. A recent water supply failure in a single unit cost almost \$80,000 in damage and repair costs.

So what will be affected? The waste risers and lateral pipes for all GHI units and the water supply lines in the masonry units. Waste pipe risers and some water supply pipes are shared by adjacent units in the shared wall between units, often referred to as the wet wall. Therefore, two units will be affected simultaneously during the pipe replacement/refurbishment work. This work will require members to be temporarily displaced while water is shut off and pipes are refurbished and/or replaced. In addition to temporary displacement, kitchen cabinets and countertops may need to be removed to allow access to the pipes in the wet wall. All reasonable efforts will be made to save and re-install the member's cabinets and countertops.

In some cases, the refurbishment may affect the electrical panel on the wet wall. All attempts will be made to avoid those panels, but some units may require electricity to be shut off during replacement/refurbishment. The prospect of replacing the electrical wiring while the walls are open has been considered by the Committee. According to BC member Steve Skolnik, however, the wiring in the Cooperative should still be well within its lifespan. Any issues that are discovered during the electrical inspection component of the pilot program will be considered for remediation that may impact the full Cooperative project.

The costs of the refurbishment/replacement work itself, will be through the Replacement Reserve fees that are already part of the GHI monthly co-op payment.. In 2018, the project was estimated to run at a cost of \$7500 per masonry unit.. The cost of member displacement, according to the 2018 Replacement Reserve Study, was not specifically included as covered. This funding needs to be clearly defined for both the pilot and the full program. The Pipe Replacement/Refurbishment Pilot Program will determine whether a temporary increase to the replacement reserve fee must be added to cover the cost of unexpected situations such as increased project costs, mold remediation, electrical costs, and/or unuseable kitchen cabinets.

Proposed Pilot Program Structure and Timeline

The pilot should include a sufficient number of rows and units to adequately trial the technology alternatives identified as potentially cost saving, while allowing for a number of ‘hard pipe replacement’ trials to establish a cost/process baseline. The work done on the selected rows can help to inform GHI as to the typical staff, expense, and time costs involved in repairing / refurbishing the plumbing in GHI homes.

During the pilot program, members would not have physical access to their GHI unit because the water and waste services will be interrupted to refurbish / repair the plumbing infrastructure. Additionally, the units will contain active construction zones. Therefore, this work would displace members and they would not be able to retrieve belongings or use the facilities inside of their GHI unit.

Member and Row Selection.

1. Finding members who would volunteer, get to have their kitchens/bathrooms replaced.
 - a. Do you have a place to stay 3-4 weeks with your children/pets? Have that be a selector.
 - b. Compensate displacement with DMV area per diem if they don’t have a place to stay. Or negotiate with a hotel that has good standards, for a lower rate.
2. Arrange for mold / wood rot remediation and/or carpentry inspection and fixing services.
 - a. Not arranging contracts ahead of time but having good sources of help at the ready.
 - b. Having a negative air machine purchased / rented ahead of plumbing work.

Main Program Proposals: Trial PEX A (the high quality version) and Waste Lining replacement in addition to a ‘Control’ group.

a. Size of Targeted Pilot (24 - 32 Units)

- i. 6-8 Blocks (2 to 3 rows)
 1. Targeting a duplex (row of 2) is encouraged.
- ii. 6-8 Bricks (2 to 3 rows)
 1. Targeting a duplex (row of 2) is encouraged.
- iii. 12-16 Frames (2 to 3 rows)

b. Recommended Scope of Work

- i. Select and Survey Pilot Program Members
- ii. Inspect and Document Selected Kitchens, Bathrooms, and Wet Wall Areas with photographs and videos.
- iii. Secure rooms of the home not included in the pilot program work.
- iv. Confirm permitting/regulation requirements have been met or are not necessary.
- v. Identify and remove cabinetry, countertops, and other related interior features obstructing sufficient wet-wall access.
- vi. Test default ‘hard pipe replacement’ to identify cost/process baseline.
- vii. Test technology alternatives materials and techniques.
- viii. Add water shut off valves inside individual units.

- ix. Restoring member cabinetry, countertops, and interior design elements to match documentation.
- x. Restore water service and enable members to return to the unit.
- xi. Conduct post-work surveys to capture member feedback.
- xii. Document the project cost and identify areas of success/needed improvement in the process. This should include an analysis of the long-term costs of the hard pipe replacement and the technologies, including maintenance.

c. Pilot Member Selection

- i. Because replacing the waste pipes in GHI units will necessitate simultaneous displacement of an entire row, the pilot program should identify and select a set of rows of units with multiple members expressing interest in participating, units with known plumbing issues, other extenuating circumstances, or a combination.
 - 1. In order to map / establish where interest or most urgent need is, GHI should issue a survey to members (**Attachment 2**) explaining the need for the Pilot Program, the work and displacement involved, and the benefits of participating, namely that this major, unavoidable, and otherwise timing-uncertain disruption to indoor living space, will be concluded for the selected units.
 - 2. After survey results have been received, a map of interested members should be produced, either in a spreadsheet/database or on a visual physical map to help identify rows.
 - 3. The rows chosen should be representative of different unit types (brick, block, frame), unit number (duplex, 4 in a row, or potentially more), and relationship to plumbing services (pipes in crawl spaces or pipes elsewhere).
 - 4. While the variable of member interest in the pilot program can potentially illustrate which rows would express the most cooperation in participating, the Building Committee recommends that GHI ensure, at a minimum, that all unit types, as well as major plumbing infrastructure set-ups (crawl space/other) be included for each of the ‘control’ and ‘test’ groups for trialing the alternative technologies identified.

d. Pilot Member Displacement

- i. When members are selected as part of a row, but did not indicate an ability to live elsewhere for the identified period of disruption, they should be provided alternative accommodations.
- ii. , either in the form of a hotel voucher and per diem payment, or in temporary lodging in either a GHI unit that GHI owns or in a vacant GDC apartment.

e. Potential electrical system inspections and certain limited repairs

- i. The overall concept of this optional addition to the pilot project is to, ahead of plumbing repair or refurbishment demolition / deconstruction work (during the initial inspection and documentation phase) inspect electrical systems without causing undue disturbance to existing wiring and equipment. It is specifically recommended that light fixtures NOT be removed, as this disturbs aging wiring and is likely to cause more harm than good.
- ii. Work items to be performed in this portion of the pilot program:

1. Visual inspection of main electrical equipment and unit circuit breaker panels -- includes removal of covers and inspection for evidence of heating at points of connection.
 2. Inspect building ground system and test to meet code requirements for maximum resistance to earth.
 3. Replace original electric range outlet if present. Inspect range cord and replace if the outer jacket is cracked or deteriorated.
 4. Inspect all branch circuit receptacles, replace any that are broken or are overly worn (fail to securely hold a cord cap.) If any original ungrounded (2-prong) receptacles are discovered, these are to be replaced with grounding (3-prong) ones.
 5. Inspect light switches and replace any that are broken.
 6. If substandard or 'illegal' wiring or equipment is discovered, document and notify GHI Director of Maintenance.
 7. The work does not include providing any new wiring or electrical equipment.
 8. Conduct infrared scans of the building, including the main service for hot spots.
- iii. Pros and Cons of including Electrical Work in Pilot Program.
1. The Buildings Committee acknowledges that this work will add complexity and cost to the pilot program - but may result in some efficiencies by avoiding a separate visit to homes in the future. If electrical inspection is included, it would need to happen prior to plumbers working on infrastructure - as electricians will need to turn off the electricity to safely inspect and repair - and plumbers need electricity to do their work.

Estimated Costs (Categories)

GHI replacement reserves for the wider cooperative are scheduled to be updated in 2023, informed largely by the results of the pilot program. The cost categories associated with the pilot program. that the committee recommend be considered are as follows:

Definite costs

1. Inspection, Refurbishment, Repair, and Limited Replacement of water supply (masonry) and waste piping (all).
2. Demolition (or deconstruction) and replacement of pilot member unit cabinetry, tile, countertop, and other interior wall elements (all homes).
3. County, City, and WSSC inspection and permitting fees, and associated GHI staff time.
4. Vouchers for displaced pilot program members (hotel) or expenses associated with temporary accommodations for displaced pilot program members in GDC apartments.
5. Installation of water shut off valves where currently inaccessible/non-existent.
6. Staff time connected to coordinating pilot member selection, communication, and information gathering (before, after surveys, member feedback, issues with plumbing infrastructure or interior element replacement)

7. Materials needed to trial alternative technologies identified
 - a. PEX (Water Supply), Pipe Lining (Waste Pipes), and Hard Pipe Replacement.

Potential additional costs.

1. Pipe Inspection, repair, refurbishment, and replacement of plumbing infrastructure in first-floor bathrooms.
2. Replacement of interior components that do not survive removal/are not able to be reinstalled (counter tops, cabinets, backsplashes, ornamental elements), including staff time required to document original and post-refurbishment features, purchase of supplies and materials suitable for replacement, and coordination with pilot program members.
3. Remediation of issues discovered upon inspection of interior wall areas (mold, carpentry issues, and other damage to walls)
4. Unexpected but necessary structural repairs
5. Per diem expenses for pilot program members that are required to remain outside of their homes for longer than the expected standard time period (committee recommends 4 weeks).

Next Steps

1. Implement active information sharing about the upcoming pipe repair and refurbishment work with all plumbing related permit applicants. (Attachment 1)
 - a. What is being replaced and implications to kitchen and bathroom areas
 - b. Timeline
 - c. Displacement

2. Policy Recommendation (Maintenance Visit Replacements).

The Board should consider a policy on replacing pipes as part of member renovations that will significantly affect the wet wall. Data should also be collected during the pilot on how such pipe replacement could be done, what degree of coordination would be necessary between GHI staff and members, and what such pipe replacement would cost compared to bulk hard piping replacement.

This policy:

- should be made readily available for use by maintenance/technical services staff and included in staff briefings.
 - Be put in place ahead of the broader pipe replacement effort and remain in force until pipe replacement is completed
 - Be applied to both sets of pipes in a shared wet wall if a single unit is renovating.
3. The GHI BoD should direct staff to investigate and apply for available rebates for pipe upgrades. Rebates that require additional compliance, work, or reporting should be evaluated using a cost-benefit analysis as part of the decision to pursue rebates.
 4. The Board should consider how to advise staff on protocols related to issues gaining needed access to the unit as a result of:
 - a. Member unwillingness to cooperate
 - b. Expensive/custom/risky kitchen trims or conditions that might impair work
 - c. Hoarding (did HIP require the unwilling members to sign for responsibility? Members can not opt out in this case).
 - d. Other obstacles.
 5. Prepare and distribute a ‘Member Interest’ survey to gauge and map member willingness to participate / volunteer in the pilot program (example form Attachment 2).
 6. Once members are selected for the Pilot Program, issue a pre-pilot satisfaction survey (example Attachment 3) to help set a baseline for their use/enjoyment of their home

related to the plumbing infrastructure. Note: the 'after' survey should contain explicitly separate sections on a) the function/use of the plumbing service in their home and b) their experience in the plumbing pilot program.

7. Policy Recommendation (unwilling members)
 - a. The Buildings Committee strongly recommends that members not be allowed to 'opt out' of broader plumbing repair and refurbishment, as pipe failure can (and eventually will) lead to severe and costly impacts to their units, adjacent units, and the cooperative as a whole.
 - b. In conjunction with, or ahead of the plumbing pilot program, the BoD should consider determining a procedure or policy for addressing the situation of a GHI member who is unwilling to vacate, for the requisite length of time, their unit for the purpose of plumbing repair/refurbishment.
 - i. Members may be resistant or unwilling to vacate their homes for many reasons - some very valid. However, this unwillingness or lack of availability cannot be allowed to result in a unit being skipped.
 - ii. Enough warning (multiple years in advance, if possible)
 - iii. Mitigated through clearly defined interior furnishing replacement protocols
8. If possible, usable material removed from homes should be donated, recycled, or sold to offset the cost of the pilot project. While the Buildings Committee does not possess specific expertise on this, the pilot project may help to illuminate possible outflows of material other than the landfill, which, for the broader pipe repair work on the 1600 homes, will be very significant.
9. Contact the insurance company and/or legal counsel to determine what steps, if any, would be required to allow for weekend-access for members that are displaced from their homes. This access would not include use of the plumbing services.
 - a. The process for members getting access to their homes would involve contacting Technical Services to communicate the need for member accessibility.
10. Determine if there is a way to schedule broader pipe repair/refurbishment work either in conjunction or immediately following WSSC work connecting utility infrastructure to the houses.

Attachment 1: Example Response to Member Application for Permit involving kitchen, bathroom, or other wet-wall areas.

“Hello, thank you for applying for a Permit Type XX.

In the coming year (2022-2023) GHI staff will be conducting a [pilot program](#) to test methods of repairing or refurbishing aging pipes in GHI homes (all types). This program will involve some units being temporarily vacated while contractors, technical experts, and staff evaluate technologies, methodologies, and costs for inspecting, repairing, and refurbishing plumbing infrastructure within and below GHI homes. This work will likely involve the removal or demolition of certain aesthetic features of GHI bathrooms, kitchens, and wet wall areas. The exact methodologies for determining to what extent member aesthetics / interior features will be restored is still being determined, in part, by this pilot program.

Following the pilot program, GHI staff will develop a timeline and plan for replacing aging plumbing infrastructure in the wider cooperative. This repair and refurbishment work is currently planned to take place from 2024 - 2032, and will involve elements of demolition needed to access plumbing infrastructure.

Members are encouraged to consider, plan, and make upgrades to their kitchens, bathrooms, and wet wall areas with upcoming plumbing repair and refurbishment in mind. This repair and refurbishment work cannot be opted out of by members, as it is necessary to prevent costly and hazardous pipe failures that potentially affect multiple homes.

While GHI staff is committed to ensuring that the planned plumbing work leaves the infrastructure safe and functional, there is no guarantee that member household aesthetics, cabinetry, or other interior elements will be restored to match the original state of the affected areas, or to the member’s exact preferences. “

Attachment 2: Member Selection Interest Form

Hello,

GHI staff is in the process of selecting rows of units for the Plumbing Repair and Refurbishment Pilot Program. The purpose of this pilot program is to test technologies, techniques, and processes that can safely and efficiently restore and repair aging plumbing infrastructure within and below our homes. While the exact methods and materials used in broader pipe refurbishment are still being determined, in part, by the results of this pilot program, the following is currently planned in all units that will be involved.

1. Installing a member-accessible water shut-off valve if one does not currently exist.
2. Inspecting, repairing, refurbishing, and/or replacing waste pipes in frame homes.
3. Inspecting, repairing, refurbishing, and/or replacing water supply pipes and waste pipes in masonry homes.
4. Inspecting interior spaces containing pipe infrastructure and resolving or remediating major issues identified (mold, carpentry issues, etc...)
5. Removing and replacing cabinetry, countertops, or other interior features to enable access to plumbing infrastructure.

During the pilot program, members would not have physical access to their GHI unit because the water and waste services will be interrupted to refurbish/replace the plumbing infrastructure. Additionally, the units will contain active construction zones. Therefore, this work would displace members and they would not be able to retrieve belongings or use the facilities inside of their GHI unit.

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1. Would you like your unit to be considered for inclusion in the pilot program (planned for some time during 2022 - 2023)?
 - a. Yes
 - b. No
 - c. Don't Care
 - d. Not sure/need more information
 2. If your unit were to be selected for inclusion in the pilot program, do you and/or your family have a place they could relocate to for approximately 3-4 weeks while work is being done in your unit? (relatives, summer home, flexible vacation etc...)
 - a. Yes
 - b. No
 - c. Not Sure
 3. Do you own/cohabitate with pets that would need special accommodation while the work was going on, AND that could not travel with you during the 3-4 weeks that work was taking place.

- a. Yes
 - b. No
 - c. Not Sure
4. Are there existing issues with the function of your home's plumbing infrastructure or fixtures (sinks, showers).
- a. Yes
 - b. No
 - c. Not Sure
5. Do you intend to make an alteration to your kitchen, bathroom, or wet-wall in the next 5 years?
- a. Yes
 - b. No
 - c. Not Sure
6. Does your unit currently have a water shut-off valve you can access?
- a. Yes
 - b. No
 - c. Don't know

Attachment 3: Before Survey: Member satisfaction and concern regarding their unit’s plumbing infrastructure.

Please let us know about your current satisfaction or concerns about your unit’s plumbing.

1. How satisfied are you with your current plumbing infrastructure (1-10)?

2. Do you currently maintain an active HO6 insurance policy?

3. Do you have concerns associated with (select any that apply)

- a. ___ Water pressure
- b. ___ Leaks
- c. ___ Corrosion / fixture issues
- d. ___ Smells or Sounds
- e. ___ Access (water shut-off, issues in operating plumbing)
- f. ___ Other
- g. If you selected any, please explain here:

4. Have you contacted GHI regarding your unit’s plumbing in the last 18 months?

- a. If so, what about _____
- b. Was the issue addressed satisfactorily?
 - i. Yes
 - ii. No
 - iii. Not Sure

Attachment 4: GHI Unit - In-Process-Work Entry Liability.

During the GHI Plumbing Repair and Refurbishment Pilot Program, GHI staff and contractors need uninterrupted access to units in order to inspect, examine, document, and conduct work. This work will involve heavy machinery that requires training to use and should be handled only by licensed professionals. Members seeking access to their homes during the Pilot Program are asked to contact Technical Services 48 hours ahead of time, and are asked to sign a waiver of liability, since parts of the home will be an active construction site.

I, the undersigned, understand that in entering my unit during the plumbing repair / refurbishment work that:

1. No children should be permitted into the unit
2. My unit may contain an active construction zone related to plumbing work.
3. GHI is not responsible for injury or property damage related to me entering the unit while plumbing repair / refurbishment work is going on.
4. The water and waste service has been suspended. This means that the sinks, showers, tubs, toilets, or other plumbing-connected services will not be functional during the plumbing repair / refurbishment work.

_____ [Member name]

_____ [Signature]

_____ [Address]

_____ [Date]