

New Approaches to Basic Water and Sewer Service



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Progress in Alaska Village Sanitation

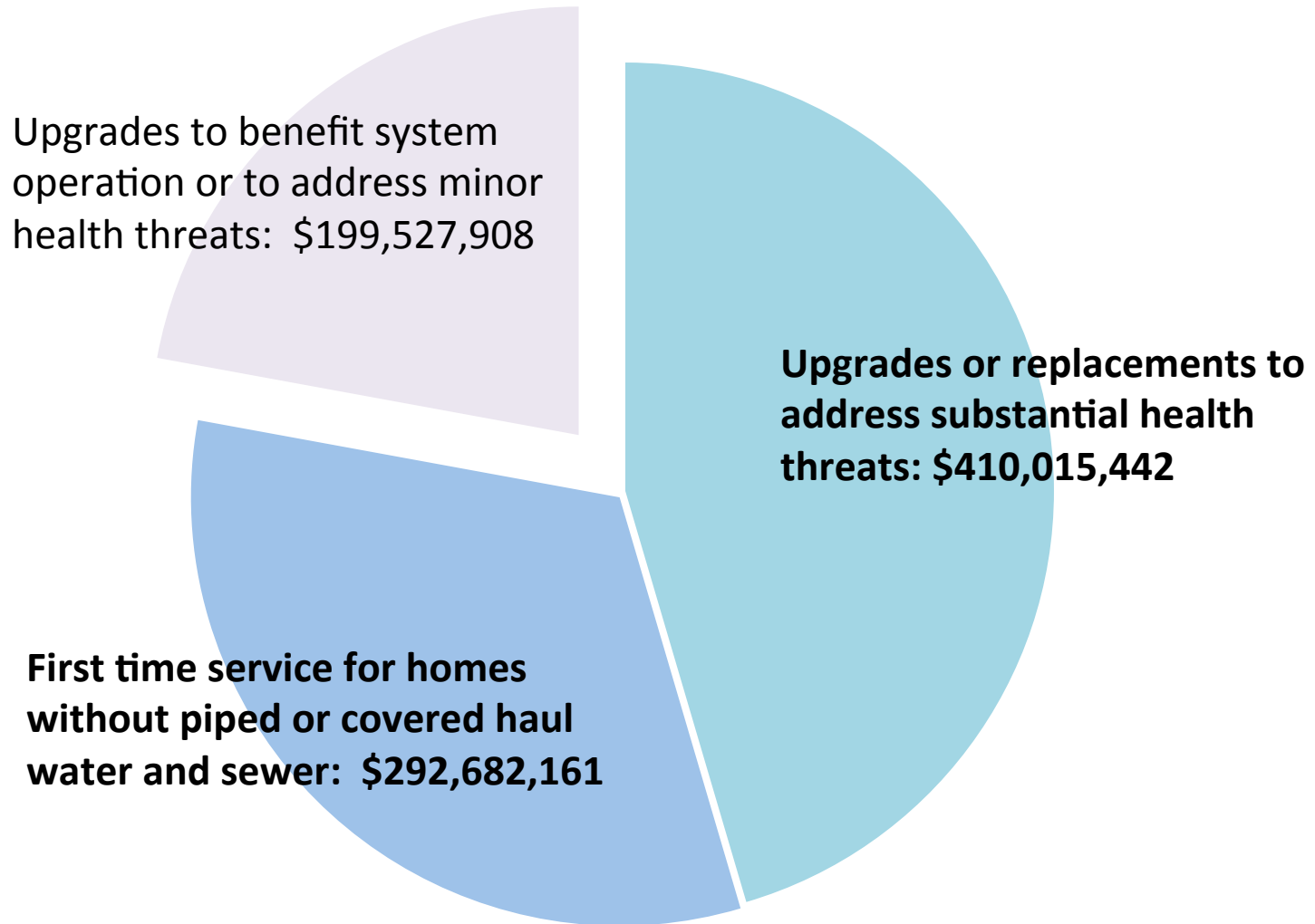
- For half a century, we've focused on “putting the honey bucket in the museum” (*and keeping it there!*)
- Much progress has been made:
 - ▣ 30 years ago, fewer than 25% of rural Alaska households had running water and flush toilets.
 - ▣ In 1996, 55% of rural homes had piped or covered haul service.
 - ▣ Today, approximately 75% of rural homes have indoor plumbing (over 90% if regional hubs are included in the calculation).

“Centralized” Approach Since 1970:

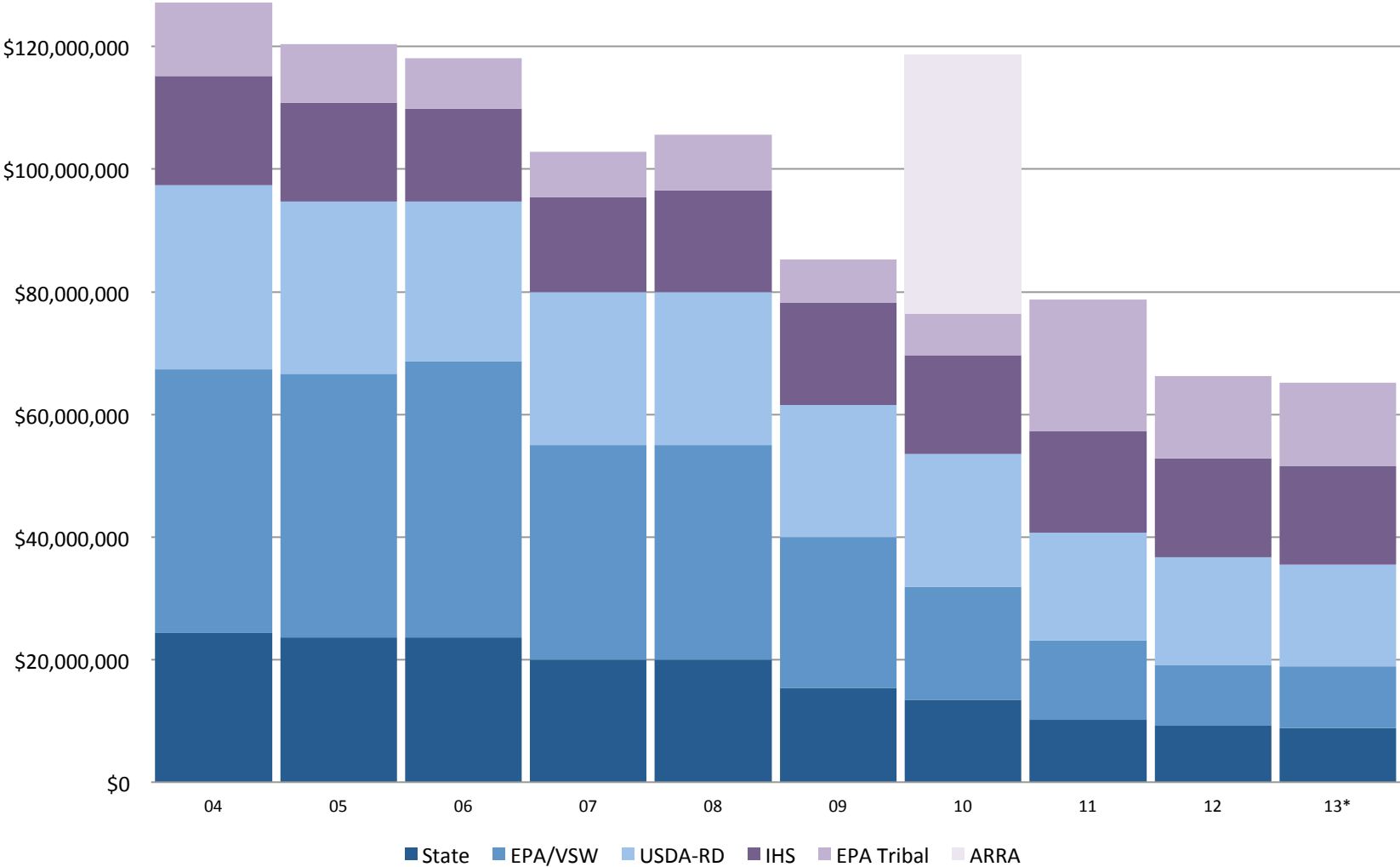
- 100% water treatment to full regulatory compliance (regardless of ultimate use)
- Storage of large quantities of water, usually requiring heat addition
- Distribution of treated water to individual homes via pipes or haul vehicle, usually requiring heat addition
- Collection of all household sewage for lagoon disposal, usually requiring heat addition

Categories of Project Needs

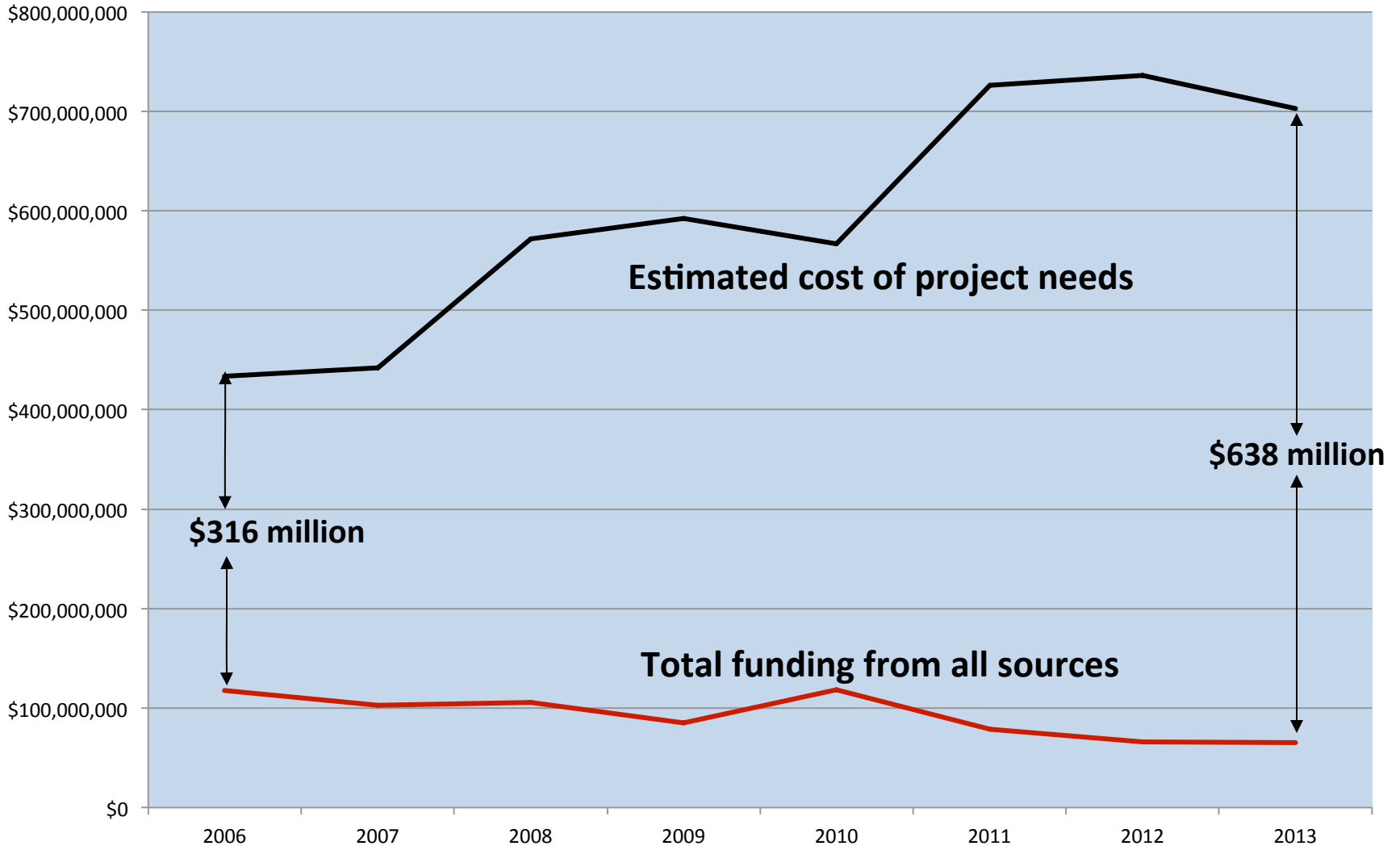
January 2013



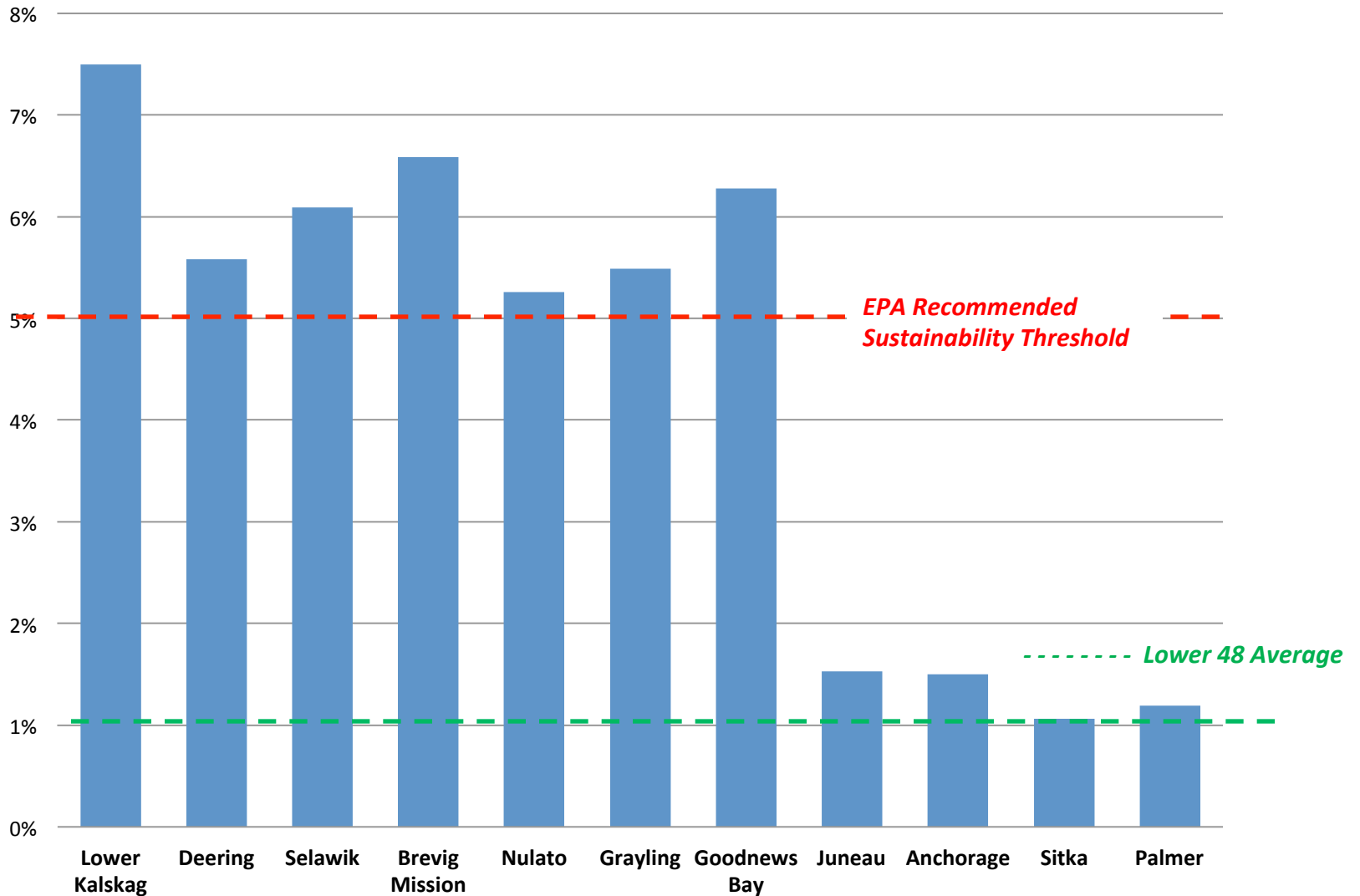
Project Funding from All Sources 2004 - 2013



The Growing Gap Between Critical Needs and Available Funding



Water and Sewer User Fees as a Percentage of Median Household Income



Bottom Line:

- ❑ Conventional, community-wide piped systems and truck haul systems are expensive to construct, maintain and replace.
- ❑ Many communities cannot afford the high operation and maintenance costs associated with piped or haul systems.
- ❑ Available funding is not adequate to serve remaining homes and make needed improvements.
- ❑ Innovative approaches are needed in order to address health problems associated with water and sewer system deficiencies.

“New Approaches to Basic Water and Sewer Service”

- A state-funded research and development project
- Projected to last 5 – 7 years
- Current year funding is \$1 million
- Funding requested for next year is \$3 million
- Focus is on “decentralized” approaches – household based systems that utilize water re-use technologies
- Goal is to significantly reduce the capital and operating costs of in-home running water and sewer in rural Alaska homes.

Project Plan: Phase I, Spring 2013

Formation of Joint Venture Teams

- ❑ DEC will advertise and request the formation of joint ventures, comprised of members with specific expertise.
- ❑ A three-month long international solicitation for Statements of Qualifications will occur in early 2013.
- ❑ Engineering companies, research institutions, manufacturers, and others will be encouraged to form partnerships in responding to the solicitation.
- ❑ The top five to eight teams will be funded for development of proposals that will meet specific performance criteria.

Project Plan: Phase II, late 2013

Proposal Development

- Project teams will spend six months to develop proposals that will meet performance criteria
- Project teams will present their detailed proposals to the project Steering Committee.
- The most promising proposals (up to three) will be selected to receive additional funding for further development and pilot testing in a laboratory setting.

Project Plan: Phase III, 2014

Prototype Development & Pilot Testing

- Up to three proposals will be funded for prototype development and pilot testing in a laboratory setting.
- Engineering plans of each prototype will be reviewed and approved and testing requirements will be provided.
- In late 2014 the results of the pilot testing phase will be presented to the Steering Committee.
- Systems that demonstrate promising results will be selected for the next phase of development.

Project Plan: Phase IV, 2015

Field System Development and Testing

- Additional funding will be provided for to develop a field testing package that can be installed in rural Alaska homes.
- Engineering plans will be reviewed and approved and testing requirements will be provided.
- Field testing will include a full year of operation.
- During this phase, systems will be closely monitored and users will provide feedback on operation and use.
- Systems that can demonstrate sustainable, durable improvements will be refined and further deployed using available funding sources.

Project Plan: Phase V, 2016 - ?

Refinement and Improvement

- Additional funding may be used to address inadequacies or failures identified during Phase IV field testing and to improve durability of the systems.
- Field testing may be expanded to additional homes or locations.



***“Discovery consists of seeing
what everybody has seen
and thinking what nobody has thought.”***

Albert Szent-Gyorgyi

Hungarian physiologist who won the Nobel Prize in Medicine in 1937, credited with discovering vitamin C.