Agenda Item III.2

Smart and Connected Communities

National Science Foundation grant through UVM

8/6/2019 - Letter of Intent due (with support letters from communities)

9/6/2019 – Full proposal due

Approximate project timeline: June 2020 – May 2023

Anticipated budget amounts: $750,000 to $4M over up to 4 years

The NSF Smart and Connected Communities grant program:

- Goal**:** Accelerate the creation of the scientific and engineering foundations that enable new levels of:
    - economic opportunity and growth
    - safety and security,
    - health and wellness, and
    - overall quality of life.
- This goal will be achieved through integrative research projects that pair advances in technological and social dimensions with meaningful community engagement.

Our UVM proposal to this NSF grant program will focus on smart sensors and innovative technologies around waste water and water issues that will make redevelopment of historic downtowns and village centers more feasible.

We propose that Bristol participates as one of 3 Vermont communities.

This NSF grant could pay toward an innovative pre-treatment solution for Bristol's downtown WW system that is integrated with smart technologies. For example:

- An innovative pre-treatment system could be developed to double existing capacity of the Bristol WW treatment system, and address grease inputs from restaurants and possibly brewing waste inputs.
- Sensors could measure TSS, BOD, and flow in real time to enable dynamically-updated estimates of WWTF usage and residual capacity, that could allow the town to make more timely decisions about new business inquiries in the historic downtown.
- System operational parameters could be viewed in real time through a web-based "dashboard" accessible to system operators, the town, and VTDEC. Possible options for remote operations. Address associated cyber-security issues.

- Associated smart metering of usage from the water system (that could also detect leaks).
- Enable redevelopments of the downtown district through improvements to and possible expansion of the WW system.