



Focus Team: Infrastructure/Sustainability Joint Meeting

Date and Location: Thursday, March 17, 2022 – 443 Oak Nonprofit Center and Zoom

Estimated Attendance: 32 including staff & consultants

Guiding Questions:

N/A

Key Technical Information Shared:

Michelle Stewart, Exec. Director of Yampa Valley Sustainability Council (technical consultant to Brown Ranch) and Patrick Staib, Sustainability Team Co-chair, presented sustainability priorities at Brown Ranch and key intersections with the infrastructure team. See attached slides. Meeting recording is available upon request.

Sustainability Directions:

Overall - Analysis and Modeling

- Analyze community-scale energy and water systems to compare with more conventional approaches
- Analyze energy and water demand and systems for future climate scenarios (2050, 2080)
- Evaluate life-cycle costs vs first costs in infrastructure cost analysis

Energy

- Prioritize the smallest carbon footprint that can provide long-term affordability and energy security for
- residents.
- When modeling electricity needs, consider all-electric buildings, on-site electricity generation, and
- connected heating/cooling and/or ground source heat pump systems.

Water

- Assume low-flow, minimal water use as baseline for modeling residences.
- Minimize impervious surfaces and manage stormwater runoff to support “natural” open space. “slow it, sink it, spread it.”

Transportation

- Prioritize multimodal transit (public, biking, and walking) over vehicular transit.
- When modeling electricity needs, consider increased use of EV and EVSE transportation

Materials

- Consider a zero-waste community, with more centralized trash and recycling, when evaluating street widths and alleyways.

Public Input:

Comments:

- Need charging space and infrastructure for e-bikes and vehicles. Think about where and how e-bikes are charged ... can't carry them up to your 3rd floor unit to charge overnight.
- If everyone at Brown Ranch has 2 electric vehicles in 2050, that doubles energy demand. How many personal vehicles will we allowed onsite?
- Regarding building efficiency: Brown Ranch should aim to achieve a HERS score around 20-30. There is long-term cost savings by making buildings better than code.
- Prioritize building efficiency over onsite solar generation.
- Look to net-zero.org for an example code for high performance buildings.
- There will be a major expense if we don't install natural gas at beginning of project and then decide we need it for affordability.
- Ed is right about getting the natural gas lines into the ranch during beginning infrastructure work... piping in natural gas at the outset is better than folks bringing in propane tanks later, or investing in expensive natural gas lines later.
- Remember, Brown Ranch is to provide workforce housing ... so many people who live at Brown Ranch are going to be traveling across town to get to work. So, we do need figure out the Highway 40 pinch point. Be careful not to overstate the amount of trip reduction we can capture.
- Consider a Brown Ranch real-time shuttle that connects with SST connection.
- Try to use most "biophilic" design with ranch. Think about a 'Landscape Replacement' scheme... putting vertical green walls or sod roof structures when paving over the existing natural landscape. Create & maintain more pollinator habitat.
- The plastic playground at the new school is not appropriate for children's health. It doesn't hold water. It allows for increased runoff. Also, there seems to be enough soccer fields nearby.
- Soccer fields sound superfluous when trying to create affordable housing with a greenish concept. there are nearby playing fields at heritage park and sleeping giant, plus lots in town. Prioritize the existing natural landscapes when possible. These places are good for children and adults, like soccer.

Questions:

Q: Also, how much land is needed for heat pumps?

A: No surface area used because everything is underground.

Other Comments/Technical Info Shared by Consultants and/or Local Experts:

- Prioritize concentrated density and holistic efficiency.
- It will take 18-24 months for sub-station transformers to be fabricated and delivered.
- To get natural gas to site, will cost \$1M/mile. (\$2.5M).
- YVSC Preferred energy source: Do not use natural gas at Brown Ranch.
- Maximize run-off of Slate Creek corridor with swales.

- Need to make sure we are thinking about water needs in future because we know the Yampa River Basin is getting hotter and drier. Evaporative loss will increase. Need to consider that with irrigation for landscaping.
- Create opportunities for public transport to be as convenient as possible (a better experience) so it's easier for people to use than it is to drive cross town and park.

Recommendations to Steering Committee: N/A

Next Steps and Action Items: N/A

YVHA FOLLOW-UP FOR WEEKLY REPORT

Resources needed from technical consultants for next meeting

- Need more specificity on upfront costs re: options for delivering energy to Brown Ranch.
- Heat pump consultant: need technical engineering microstudy to determine costs + energy savings overtime.
- Sustainability Team will determine and share energy and water efficiency standards with Infrastructure and Urban Design teams.
- Infrastructure Team will establish a “standard Brown Ranch unit” to standardize energy and water budgets. Look at both Phase 1 and total. Consider using 3 different building types (single family home, single family attached, apartment/multi-family) and different standards each. Plus, efficiency rating + trip generation characteristic.
- Improving riparian function at Slate Creek can also be integrated with storm water management. Determine which storm water technology most efficiently utilizes the land and pass off to Urban Design.
- Evaluate viability of grey water system (water rights and legislative changes required and costs).
- Is it possible to secure water right to pump from Yampa River for unpotable water for landscaping?

Necessary Cross-Collaboration w/other Focus Teams:

- Question for Urban Design: what type of open space will exist at Brown Ranch? This has major implications on water demand.
- Cash flow and initial costs often drive project decisions. Need to bring in economics team soon. Sustainability team will continue to push for long-term affordability rather than initial costs.
- Sustainability team to make recommendations on building efficiency rating standards.