

CARMELNATUR

DEDICATED TO RESTORING AND PRESERVING CARMEL, CALIFORNIA

**Input Provided to Carmel Forest & Beach Subcommittee
for
Beach Fire Process Improvement
4 September 2014**

Scott McKenzie, Director of CarmelNatur, met with Carmel Forest & Beach Commissioners Kathy Bang and Michael Carter, along with Mike Branson, City Forester, in the Carmel Public Works offices on Junipero, between 4th and 5th Street. The meeting was conducted at the request of the Chairman of the Forest & Beach Commission (FBC) during the August 28, 2014 meeting of that commission.

This is a report of that meeting.

The purpose of the meeting was to provide input to the subcommittee in the manner provided by other interested community organizations, such as the Carmel Residents Association, the Friends of the Forest, SAND, the Innkeepers Association, the Chamber of Commerce, Carmel High School's Environmental Club, and others.

No specific solution was sought or pushed by CarmelNatur at this meeting, though it was recognized that CarmelNatur had previously published a potential solution to the beach fire problem. Rather, CarmelNatur sought to provide input on the process by which the subcommittee might take, if it were inclined to do so.

It is the opinion of CarmelNatur that the subcommittee has lacked rigor in its problem-solving process. This opinion had been made known to the FBC during the 8/28/2014 meeting. It was reiterated during this meeting.

It is the hope of CarmelNatur that the subcommittee adopts a structured, methodical, transparent process that will produce an optimized solution, based on a complete set of traceable requirements, for the stakeholders. In doing so the subcommittee will be well positioned to offer the FBC a defensible, measurable, recommended solution. In turn, the FBC will be able to present the solution to the community for comment, modify the solution in committee (as needed,) and forward it to the City Council, via other authorities (as appropriate,) for ratification.

It is the opinion of CarmelNatur that the adoption of well-established and accepted principles of Systems Engineering be employed in the problem solving process. The initial steps of this process can be simplified to the following:

1. Identify stakeholders

2. Craft a and publish a mission statement for the subcommittee
3. Decompose mission statement into requirements (modify with stakeholder input)
4. Determine metrics by which success will be measured
5. Determine constraints for the solution set

There are further steps, including crafting possible solutions and performing an analysis of alternatives, testing (verification and validation), etc. However, only these first steps were presented to the subcommittee.

In addition to presenting the steps, CarmelNatur provided opinions regarding suggested outcomes at which the subcommittee might arrive, were it to utilize the suggested process. Again, no solutions were offered during this process.

What follows is the actual input provided to subcommittee by CarmelNatur, as modified during the discussion. It begins with a list of possible stakeholders:

Stakeholders

1. Local Residents
2. Beachgoers
3. Local Government
4. Coastal Commission
5. The Environment
6. Local Business Owners

Mission Statement

Next, a potential mission statement for the subcommittee was offered. The assumption is that we are trying to find a way to continue to offer beach fire opportunities, but ones that neither make the beach dirty nor produce as much smoke:

The mission of this Carmel Forest and Beach subcommittee is to *create a process whereby beachgoers have safe, enjoyable, opportunities for beach fires and barbeques that respect the surrounding environment.*

Mission Statement Derivations

Next, a suggested decomposition of the mission statement was offered. This produced a beginning set of requirements for the potential solution. Each word of the mission statement has a purpose, and the objective of this portion of the process is to tease out that purpose. For example, we want to know, "What does the word 'safe' mean, in the context of beach fire opportunities?" According to this initial decomposition, the answer is that we want to maximize air quality, and minimize the hazards to beachgoers in the form of trip hazards, burn hazards, and physical exertion hazards.

For the noun phrases within the mission statement, such as ‘beach fires’, ‘barbeques’, and ‘surrounding environment’, we should seek to provide solid definitions.

1. Safe

- a. Maximize
 - i. Air quality
- b. Minimize
 - i. Trip hazards
 - ii. Burn hazards
 - iii. Required physical exertion

2. Enjoyable

- a. Maximize
 - i. Process
 - 1. Transparency
 - 2. Comprehension
 - ii. Sense of freedom
- b. Minimize
 - i. Hassle
 - 1. Time
 - 2. Frustration
 - 3. Intervention
 - 4. Complexity

3. Opportunities

- a. Maximize
 - i. Availability
- b. Minimize
 - i. Cost to beachgoers

4. Beach Fires and BBQs

- a. Definition:
 - i. Size Restrictions
 - ii. Fuel Restrictions

5. Surrounding Environment

- a. Definition:
 - i. Natural, earthbound environment
 - 1. Animate
 - 2. Inanimate
 - ii. Local air mass
 - iii. Human and pet population within x distance from beach

6. “Respect the surrounding environment”

- a. Maximize
 - i. Natural appearance of beach
 - 1. Maximize
 - a. Clean sand
 - i. Minimize
 - 1. Charcoal
 - 2. Ash
 - 3. Trash
 - 2. Minimize
 - a. Man-made appurtenances

- i. Signage
 - ii. Fencing
 - iii. Permanent/Semi-Permanent Appurtenances
 - b. Damage to the bank
 - c. Damage to sea walls
 - i. Smoke
 - ii. Graffiti
- b. Minimize
 - i. Impact to local residents
 - 1. Minimize
 - a. Smoke
 - b. Signage
 - c. Man-made appurtenances
 - d. Tax impact

Measuring Success

No solution can be successful if metrics and measurements for success are not defined. Therefore, for each requirement above, a set of metrics was offered. Metrics can be qualitative (subjective) or quantitative (objective). Qualitative measurements are done usually through survey or observation. Quantitative measurements can be made directly, and usually result in numeric values that can be graphed.

Of course, these metrics may require limits. For instance, a minimum air quality may be set as a constraint. Options for limits were not offered during the meeting, only that they should be considered.

1. Safety

- a. Quantitative (direct measurement)
 - i. Air quality
 - ii. Injuries to Beachgoers
 - 1. Trip injuries
 - 2. Burn injuries
 - 3. Injuries from physical exertion

2. Enjoyableness

- a. Qualitative (survey)
 - i. Process
 - 1. Transparency
 - 2. Comprehension
 - ii. Sense of freedom
 - iii. Hassle
 - 1. Time
 - 2. Frustration
 - 3. Intervention
 - 4. Complexity

3. Opportunity Rate

- a. Quantitative
 - i. Average Availability rate
 - 1. # beachgoers that had a fire/# beachgoers that wanted a fire

- ii. Cost to beachgoers

4. Environmental Impact

- a. Quantitative

- i. Natural appearance of beach
 - 1. Clean sand
 - a. Average Charcoal Contamination Rate
 - i. Volume of charcoal/Volume of sand
 - b. Average Ash Contamination
 - i. Color analysis of sand
 - c. Average Trash Contamination Rate
 - i. Weight of beach trash removed/day
- ii. Man-made appurtenances
 - 1. Signage
 - a. Square footage
 - 2. Fencing
 - a. Square footage of view blockage
 - 3. Permanent/Semi-Permanent Appurtenances
 - a. Square footage
- iii. Damage to the bank
 - 1. Length of trails
 - 2. Count of individuals caught traversing
- iv. Damage to sea walls
 - 1. Smoke
 - a. Color analysis
 - 2. Graffiti
 - a. Count of markings/day
- v. Impact to local residents
 - 1. Smoke
 - a. Air quality measurements
 - 2. Man-made appurtenances
 - 3. Tax impact
 - a. Total City Cost of Implementation
 - i. Time
 - ii. Materials
 - b. Annual City Cost of Operation
 - i. Time
 - ii. Materials

- b. Qualitative

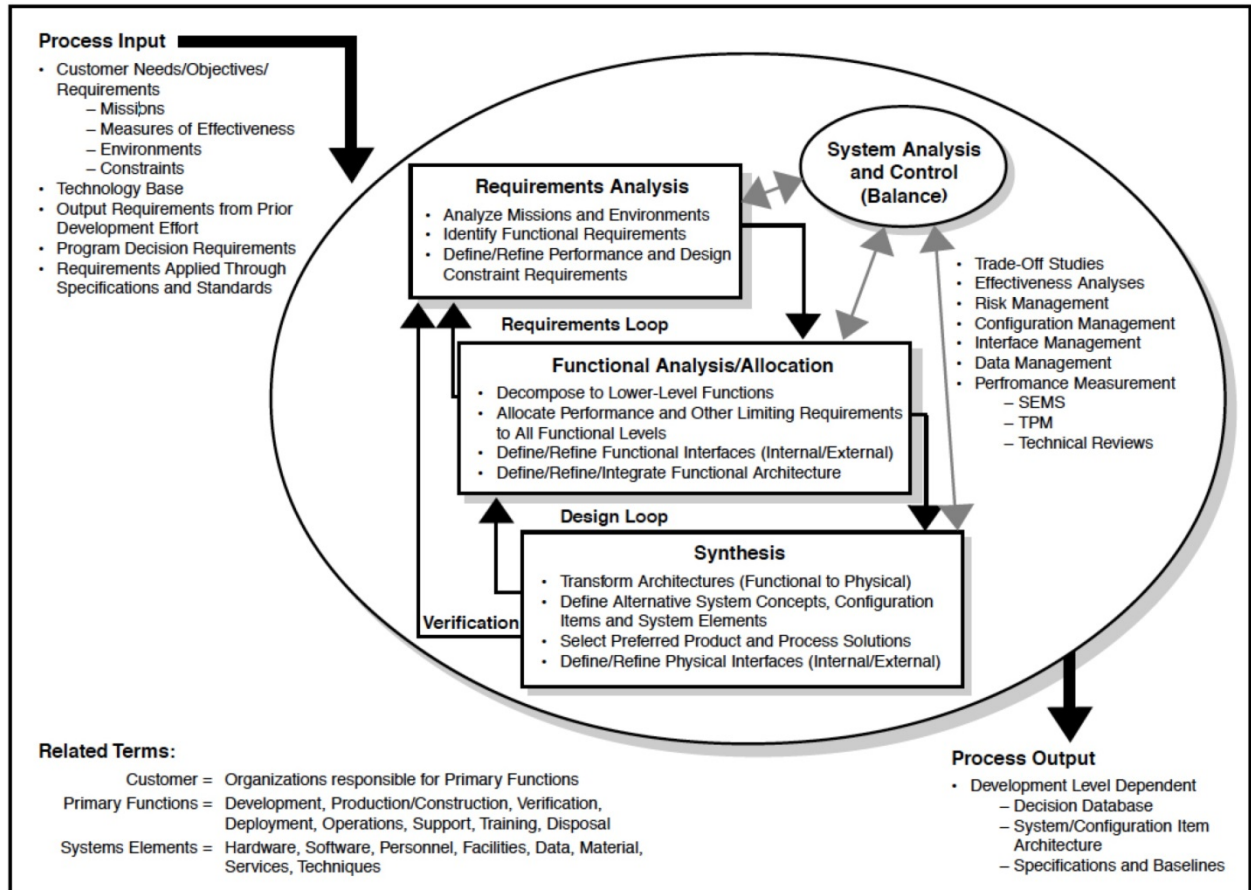
- i. Impact to local residents
 - 1. Smoke
 - 2. Man-made appurtenances
 - 3. Natural appearance of beach

Constraints

Constraints were discussed as a concept. Examples of possible constraints that were offered to the subcommittee were Commercial Activity Restrictions and Legislation (after amendments, if possible).

The Systems Engineering Process

The following graphic was presented as one of many available visual depictions of the Systems Engineering Process. This one has been borrowed from NASA:



In summary, it is the opinion (and concern) of CarmelNatur that the subcommittee may persist with an ad hoc process. It is readily apparent that the subcommittee has no defined mission, except for two “guiding principles” which are actually artificial constraints on any potential solutions at which the subcommittee might arrive.

It is also readily apparent, based on their published notes in the 8/28/2014 meeting agenda, that the subcommittee has arrived at a “solution” of a limited number of semi-permanent fire pits. Now, they have turned their attention to the size, shape, composition, quantity, and location of the fire pits, along with the fuel that will be burned in them. Again, this opinion is based on published FBC notes.

All of this has been determined without a (transparent, published) discussion of what is required of the subcommittee.

CarmelNatur continues to affirm the good intentions of the subcommittee. It also intends only professional criticism of their work. Lastly, it only seeks to help the subcommittee arrive at a defensible, measurable, solution in a transparent manner.

Any questions regarding this report may be addressed to Scott McKenzie, Director of CarmelNatur, at www.carmelnatur.org.

Respectfully Submitted,



Scott McKenzie