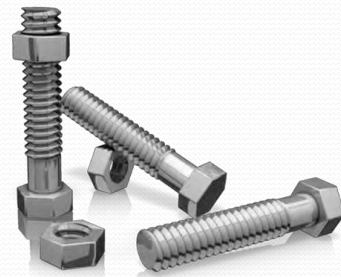# Value Planning

David Dunn, PE
Department of Ecology

Value Planning Agenda

- Why should you do "Value Planning"?
- How do you do "Value Planning"?
- Tips and Tools.

Why do "Value Planning"?

We can't you afford "business as usual"

- Cost for construction continue to increase.
- Customer expectations are growing.
- Regulation is not going away.
- Automation, networks, and technologies are evolving.
- Labor, chemicals, and power are more expensive.

Value Planning is a set of tools to innovate and break free of "business as usual".

We want to build good projects

What is a "good" project

- Completed on time, under budget?
- ~~No~~. Few change orders.
- Startup goes well?
- The completed project helps your client.

Project Success   (IT industry data)
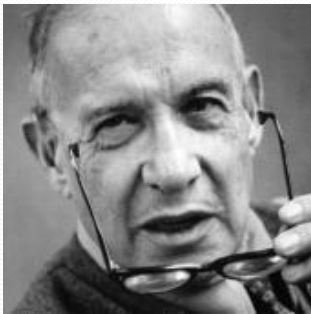
Small Projects (less than $1 million)

- 76% are successful
- 20% are challenged
- 4% fail

Large Projects (more than $10 million)

- 10% are successful
- 52% are challenged
- 38% fail

Reality Check:
You are not in control

- Bid climate,
- change orders,
- contractors,
- neighbors,
- subsurface conditions...

A good project is the <u>right</u> project, successfully executed.

"There is nothing quite so useless, as doing with great efficiency, something that should not be done at all." -- Peter Drucker

Planning is not Engineering

- Innovators think inside-out.
  - Expand their outlook
  - Look for new possibilities and options
  - Ask new questions
  - Challenge assumptions
- Designers think outside-in.
  - Form connections
  - Find solutions
  - Make decisions
  - Create results
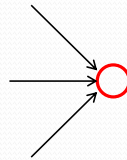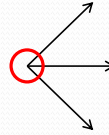
11

Value Planning means:

- Building the **right projec**t,
- At the **right time**,
- Using the **right technology**,
- Designing it to be the **right size**, and
- Embracing the **right amount of complexity** for the community.

Project Management

- Focuses on scope, schedule, and budget.
- PM tools.
  - Project charter
  - Schedule or Gant chart
  - Communications plan
  - Issue log
  - Etc.

Why are you doing Value Planning?

- Planning ahead to ensure your first step is down the correct path?
- Realizing a dozen steps in that you have started down an unproductive, unsustainable, infeasible path?

The RIGHT project

- Solves the client's problem.
- Has local support
- Is financially sustainable.
- Successfully operated by the client.

How to do "Value Planning"?

The Best Fit Solution

Start Early

- Value Planning is a process. It will take time.
- Integrate Value into your existing comprehensive plans
- Let Asset Management to inform Value Planning.
- Don't let projects become emergencies.

- Early in a project timeline, you have more control, changes cost less, and there is less at risk.
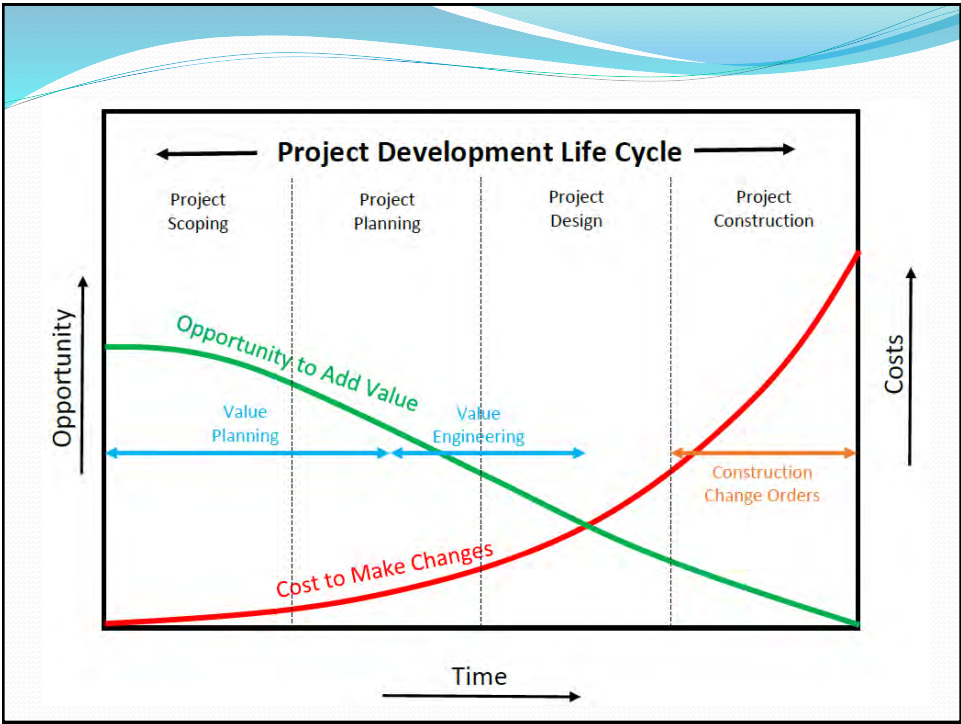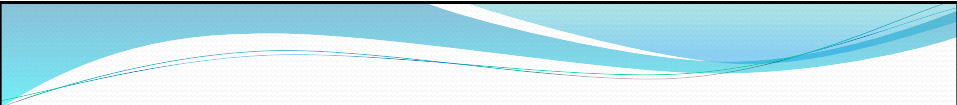
Invest enough time and resources that you are confident you are not making a mistake.

37% rule

How much time to spend choosing your project?

- It depends on:
  - How much time you have
  - Your time line for action
- The more time you give yourself, the greater your chances of finding an optimal solution.
- Don't explore options forever. Pick a time limit for making a decision.

Excuses

- "But we do this all the time",
- "We have experience with this",
- "I have great instincts",
- "I just KNOW that we should do it this way."

Trust your intuition when you are pursuing a business as usual solution.

The Best Fit Solution

Listen and Learn

Community First

- Unique local conditions dramatically affect Value Planning.
- Local political, environmental, geotechnical and hydrologic conditions.
- There are no "one size fits all" solutions.
- Local involvement and ownership.
- Local decision makers are in charge and making the decisions.

Meaningful Involvement of Stakeholders

- Identifies needs and constraints
- Generates more options to consider
- Opportunities and Pitfalls
- Better problem statements
- Builds project support

Who is a "Stakeholder"?

- Who sees the project differently?
  - Financial staff
  - Administrators
  - Elected officials (and Candidates)
  - Front Line Staff
  - Customers
  - Neighbors
  - Regulators
  - Other utilities
  - Environmental Groups
  - Tribes
  - Engineers
- Who could oppose your project?
- Who could impact or delay your project?
- Who cares about the project?
- Who could be impacted by the project?

Outreach, Engagement, Invitation…

- How you involve stakeholders matters.
- Are stakeholders:
  - Informed about the project?
  - Asked about the project?
  - Invited into the decision making process?
  - Asked to help frame the decision?
    (input on the outcome statement)

- The more engaged your stakeholders are, the more they will 'own' the project.

Public Engagement 101

- Go to them.
- Show respect, even deference.
- Actively solicit input.
- Non verbal cues
- LISTEN

Properties of conflict interactions.

- Conflict is created and sustained by actions.
- Patterns tend to perpetuate themselves.
- Conflict is shaped by culture and setting.
- Conflict is influenced by and influences relationships.

Effective listening

- Micro encouragements.
- Clarification
- Effective pauses
- Label emotions
- Open ended questions

Open Ended Questions

- Open ended:
  - Why? - Why not?
  - What if?
  - What?
- Logistics:
  - How?
  - When?
  - Where?
- Closed questions:
  - Do, does, doesn't, is, isn't, will, won't

The Best Fit Solution

Define your Problem or Opportunity

Identify Your Real Problem / Need

- Use the "five why's"
- Be honest with yourself
- Look for root causes, not symptoms
  - You may have more than one problem
- Get Clarity: Write it down
  - Two sentences, no more than 20 words, plain English
- Review with utility staff, engineers, elected officials
- Get them to buy into the problem statement
- Fully define your problem before you start working on a solution

38

Premature "HOW?"

- Focus on defining the problem, not solving it yet.
- Solving the wrong problem isn't going to move you forward.
- Symptom of Black/White thinking.
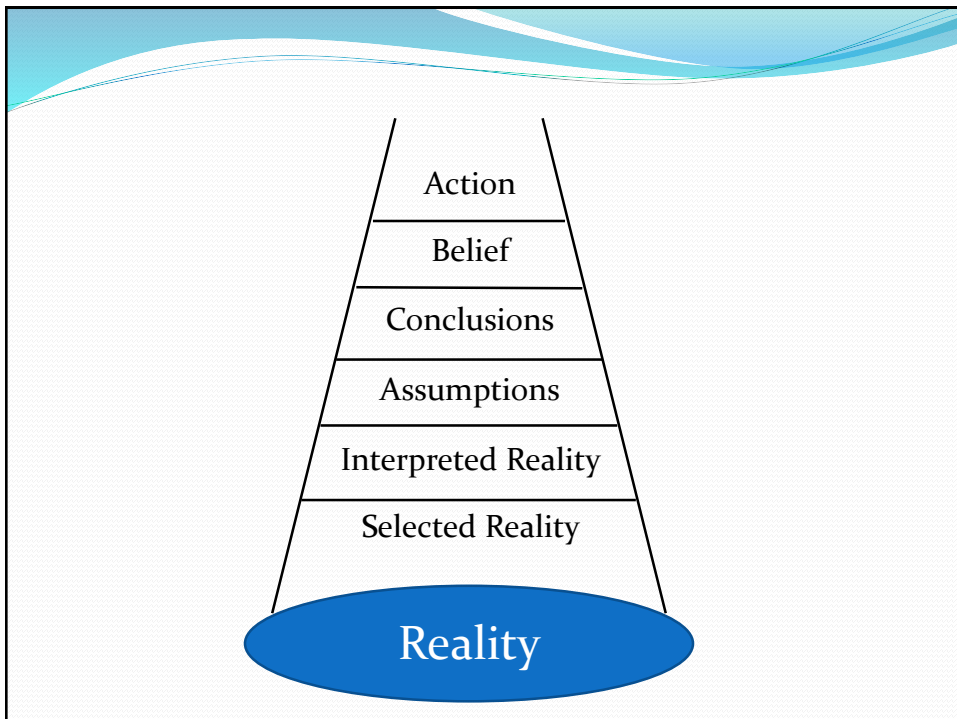- Symptom of absolute thinking.

39

Value Planning requires you Ask yourself "WHY?"

- WHY?
- WHY?
- WHY?
- WHY?
- Keep asking till you identify your real problem
- Call it "Root Cause Analysis" to sound impressive

40

Questions Assumptions

- How do you know what you know?
  - Growth projections
  - Current capacity
  - Permit Limits
  - Future Usage
  - What regulators "like" or "don't like"
  - Building for growth
  - We need a "brand new" something.
  - We have to do this project NOW.
- Do we really know this stuff?
- How can you tell?

| Action |
| Belief |
| Conclusions |
| Assumptions |
| Interpreted Reality |
| Selected Reality |

Reality

Solving too many problems at once

- "Economies of Scale" are 80% myth*.
  *according to a recent study 63% of all statistics are made up on the spot.
- Bigger projects mean big project teams.
  - Coordination
  - Meetings
  - Conflict
  - Communication
- The more people on a team, the less efficient they are.
- Big complex projects have more (and more complex) ways to go wrong.
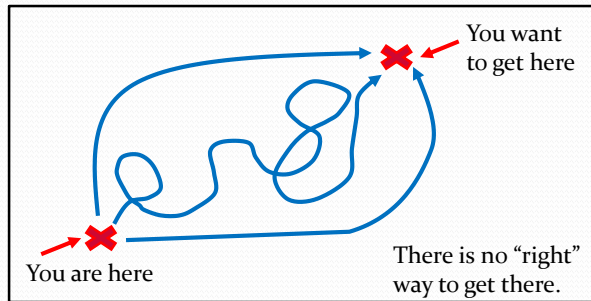

The Best Fit Solution

Develop Options

"If you want to have good ideas you must have many ideas. Many of them will be wrong, and what you have to learn is which ones to throw away."

— Linus Pauling

Find more Options

- You can only implement the things you consider.

- The "way we've always done it" is only one option.
- Remember, not every problem is a nail; unless someone is selling you hammers.

Our Bias against innovation

- Confirmation Bias
- "Business as Usual" gets the benefit of the doubt.
- Innovators get the blame.

Brainstorming 101

- Your first idea isn't bad, it's just "business as usual".
- Listen to the "nobody will do that" ideas.
- Record <u>all</u> your ideas.
- Nobody owns an idea.
- Take your time. Take breaks.
- Include different backgrounds and perspectives.
- Consider political and regulatory approaches.
- The "No Action" alternative.
- "Thinking Outside The Box" is really just being able to see a larger box.

Brainstorming in a small box

The problem:

+

The alternatives:

50

Brainstorming in a bigger box

The problem:

The alternatives:

51

Brainstorming outside the box

The problem:
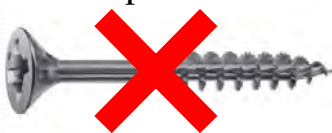
The alternatives:

52
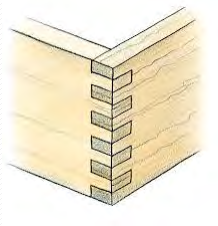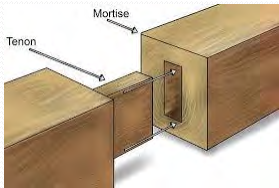
The Best Fit Solution

Choose the Best Fit Solution

Decision Time:
Resist the bias against innovation.

- There are no guarantees.
- Good decisions come from a good decision making process.
- Base your decision on the best available information.
- Do not base your decision on avoiding blame if something goes wrong with the project.

Screen the options

- Ask:
  - Does this option solve (all or part) of the problem?
  - Is this option infeasible?
- Eliminate these options.

Develop the remaining options.

- Capital Cost
- Annual Operations Cost
- How much of the problem is solved?
- Effort to implement
- Risk
- Other Benefits

The Problem with Matrices

- Unclear criteria
- Subjective scores
- An easy way to fool yourself

59

A Bad Example

Criteria	MBR	Lagoons
Construction Cost	1	3
Community Acceptance	4	1
Sustainability	3	5
Quality of Effluent	4	1
Meets "Class A" reclaimed water standards	5	1
	17	**11**

60

Another Bad Example

Criteria	MBR	Lagoons
Construction Cost	1	3
O&M Cost	1	5
Sustainability	3	5
Meets permit requirements	5	3
	10	**16**

61

A Bad Example

Criteria	MBR	Lagoons
Construction Cost	1	3
Community Acceptance	4	1
Sustainability	3	5
Quality of Effluent	4	1
Meets "Class A" reclaimed water standards	5	1
	17	**11**

62

Another Bad Example

Criteria	MBR	Lagoons
Construction Cost	1	3
O&M Cost	1	5
Sustainability	3	5
Meets permit requirements	5	3
	10	**16**

63

Whole Life-Cycle Cost

- Construction costs (design, construction management, change order / high bid risk)

    AND

- Operations costs (labor, power, chemical, laboratory, legal, financing, and admin)

    AND

- Replacement costs (short lived assets, and end of useful life replacement)

64

The Problem with Whole Life Cycle Costs

- Depends on the options considered.
- Depends on the discount rate.
- Highly sensitive to how accurate the assumptions are.
  - Estimates of construction cost
  - Estimates of annual O&M cost
  - Estimates of needed refurbishment (timing and cost)
  - Estimates of the replacement cost
- Comparing options with different useful lifetimes.

65

Decision Time: Resist the bias against deciding.

- Deciding is scary.
- You have to decide.
- You can't have somebody else decide for you.
- Good decisions come from a good decision making process.
- You implemented a good process, trust the process.

"If an old an distinguished persons talks to you listen to him carefully and with respect; but do not believe him."

- Linus Pauling

Tips and Tools

How can you tell if your "Plan" added "Value"?

Your Challenge:
Working with Engineers

- You hire engineers because they have expertise that your utility does not have.
- How do you manage these folks if you don't have their expertise?
  - How to you know that your engineer's "plan" adds "value"?

- Use success indicators.

Indicators of Success

- Something you can measure that relates to what you actually want to know.
  - Fecal Coliform Testing
  - Job interviews
  - Audits
  - Inspections

- Use these indicators to track your contractors work.
- Use these indicators to negotiate the contract/scope.

Did You: Put Community First?

- When your engineer got started, did they ask you <u>a lot</u> of questions? Did they really want to get to know you and your situation? Or did they come in acting like they knew what needed to be done?
- Did the plan evaluate the viability of the project considering your unique situation?
- Does the chosen project utilize a known technology that has been show to work in the real world?
- Can your existing staff operate the technology? If not, can you afford to hire the staff required to operate the technology?
- Can you afford the other operational costs? (Chemicals, power lab testing...)
- Is the community in charge of the project? Are you making the decisions?

Did You: Involve Stakeholders?

- Did you have public meetings early in the process? (Not to explain/defend your decision, but specifically to get input to frame the challenge.)
- Does your community have a utility committee? Did your engineer meet with the committee?
- Were the other inter-related utility systems included? (water, sewer, roads, parks, planning...)
- How many folks from outside your agency have real input on the project decision?

Did you: Focus on outcomes?

- Can you explain to others WHY you need to do the project? (Not why the chosen technology is the right choice, but why you have to do something at all.)
- Did your engineer do a root cause analysis?
- Is there a written outcome statement for the project?
  - Is it written down in the plan?
- Has your project become too large?
  - consider smaller projects.

Did You: Question Assumptions?

- Did the different alternatives identify the assumptions behind them? Things like:
  - The projected population growth rate.
  - Regulatory requirements.
  - Per capita water use.
  - Project Time line.
- DO THESE ASSUMPTIONS MAKE SENSE TO YOU?
- Were these assumptions validated?

Questioning Assumptions

- Questioning assumptions is hard.
- The "Expert Problem"
  - Your expert knows more than you do.
  - Your expert knows less than they think they do.

- Ask your expert three questions:
  - How certain are you? (quantify your thinking)
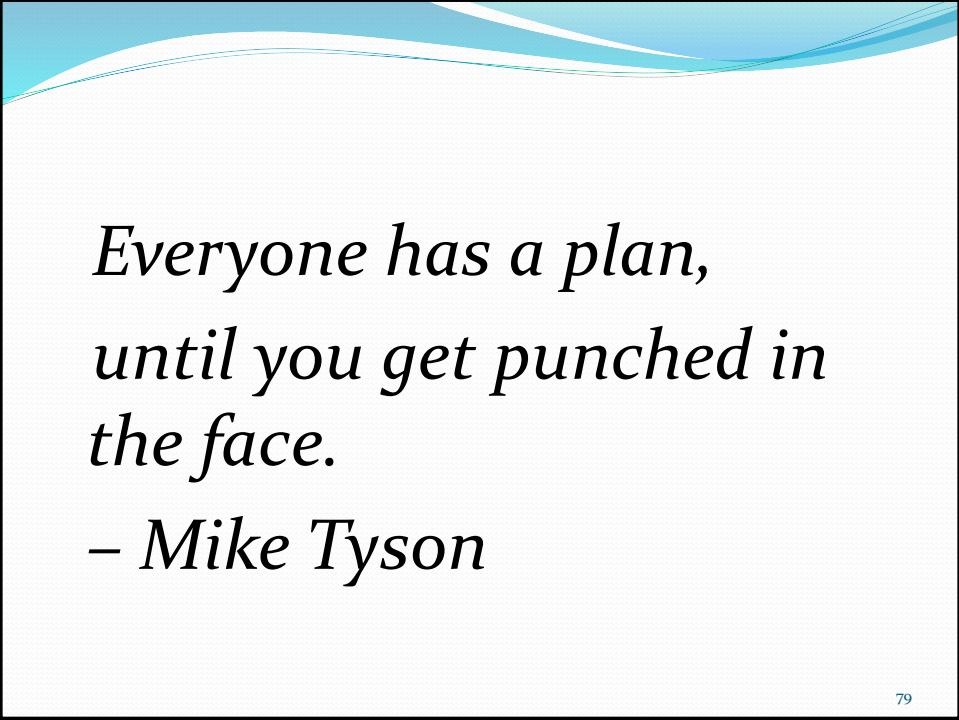 - How do you know?
  - What happens if you are wrong?

Did You: Consider Alternatives?

- Did your plan consider alternative ways to solve the problem?
- How many alternatives were considered? How many of them were "business as usual" alternatives?
- Did the plan consider different kinds of technology?
- Did the plan consider things other than technological fixes?
- Did one or more of the developed alternatives come from your stakeholders?
- Were some "corners of the box" solutions more fully developed?
- Did an option consider rehabilitating what you own instead of buying something brand new?
- Was a "No Action" alternative developed?

Did You: Measure Value?

- How did the plan measure value?
- Did the plan calculate the whole life-cycle cost of ownership for the alternatives?
- Were the alternatives compared on an "apples to apples" basis?
- Did the life cycle cost use <u>defensible</u> construction cost estimates?
- Did the life cycle cost use <u>defensible</u> operations cost estimates?
- Could you check your engineer's work?

Plans are worthless,

but planning is everything.

– Dwight D. Eisenhower.

78

Everyone has a plan,
until you get punched in
the face.
– Mike Tyson

79

Thank You!

Any Final Questions?