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# NATIONAL WESTERN CENTER

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LOCAL IMPACT  GLOBAL REACH



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*Executive Oversight Committee Meeting*  
*September 22, 2016*

## Regeneration Framework

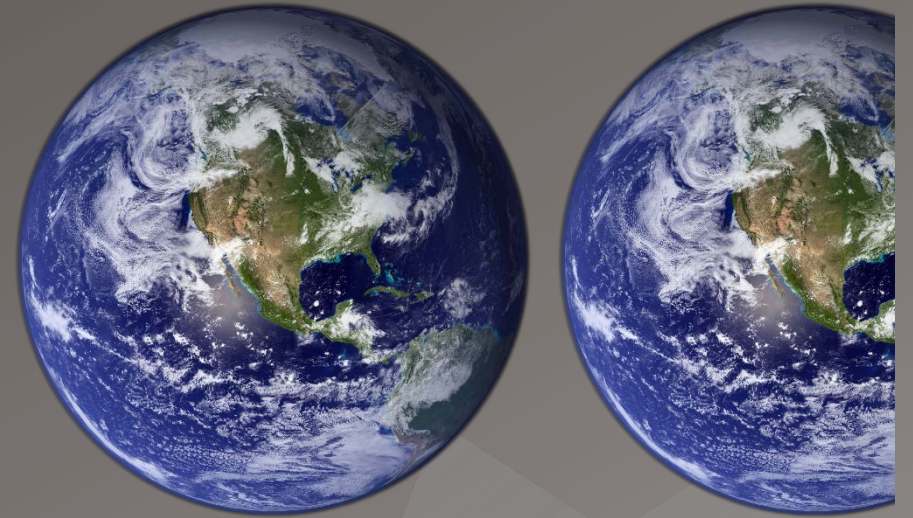
### Progress Update



Ag Industry: How do we feed 9 billion people?

# August 6<sup>th</sup> was 2016's Earth Overshoot Day \*

- The day each year that resource consumption exceeds Earth's capacity to **regenerate** those resources by year's end.



2016 Projected Consumption =  
1.6 Earths

\* As calculated by Global Footprint Network



# From Scarcity to Abundance

What if instead of  
just using less, we  
focus on creating  
more?

# NWC Guiding Principles

The Partners envision a **Regenerative Campus** that is thoughtfully planned to embrace and enhance its environmental context, service its constituents and visitors, eliminate its carbon footprint and give back to the surrounding neighborhoods.

*...we can help wind back Earth's clock...*

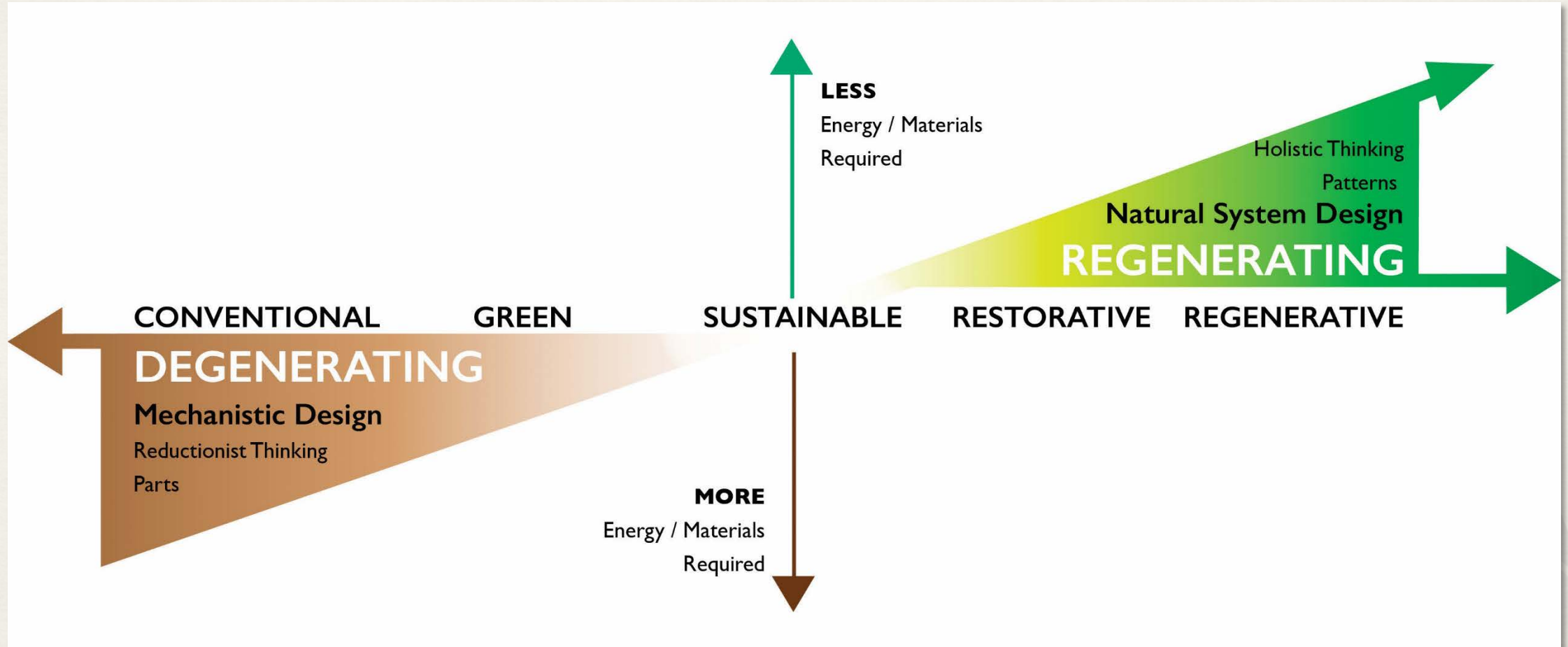


# What is Regenerative Development?

- CSU Institute for the Built Environment definition:
  - *The process of cultivating the capacity and capability in people, communities and other natural systems to renew, adapt and thrive*
- Development that is thoughtful and purposeful in how it interacts with everything and everyone it touches
- Development that is a net-producer of resources



# Regenerative vs Degenerative Development







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## Why is this important to NWC?

### Policy

- Correction of the global resource imbalance can be achieved through the development of spaces
- Opportunities to develop a campus of this scale from scratch come once in a lifetime
- Healthier living for the occupants and the neighborhoods
- Partners that believe in the ideals of Regenerative Development, and can measure/research the impact
- Helps with City 2020 Sustainability Goals
- This project will be a source of pride, and attract visitors internationally



## Why is this important to NWC?

### Practice

- Long term operational savings
- Enhance the overall program and provide educational opportunity
- Sense of purpose - it's the right thing to do
- It's part of the history of and ethic of the West
- Because our audience wants it - attendees, neighbors, future partners, tenants
- Because it provides good jobs and has economic impact



**Did you know:** Dense tree canopies reduce the long term maintenance costs of asphalt roadways by 60%

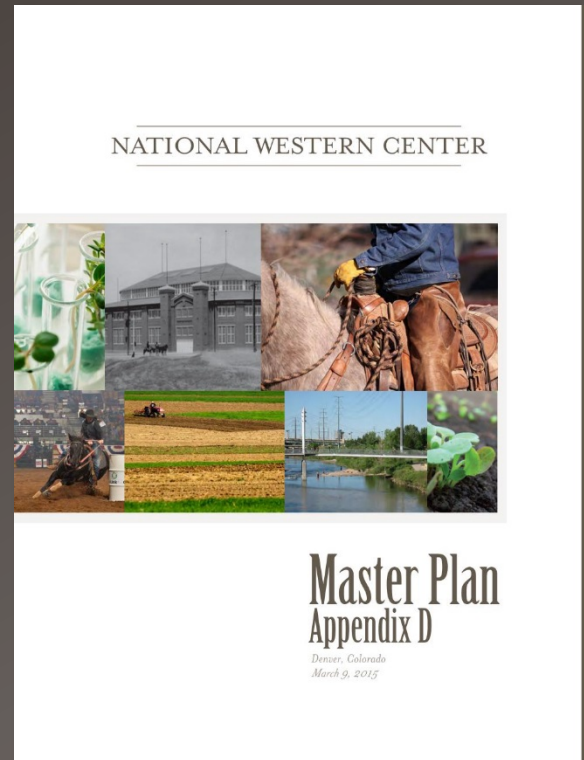


**Did you know:** Decreased traffic and increased mobility options can significantly increase public health



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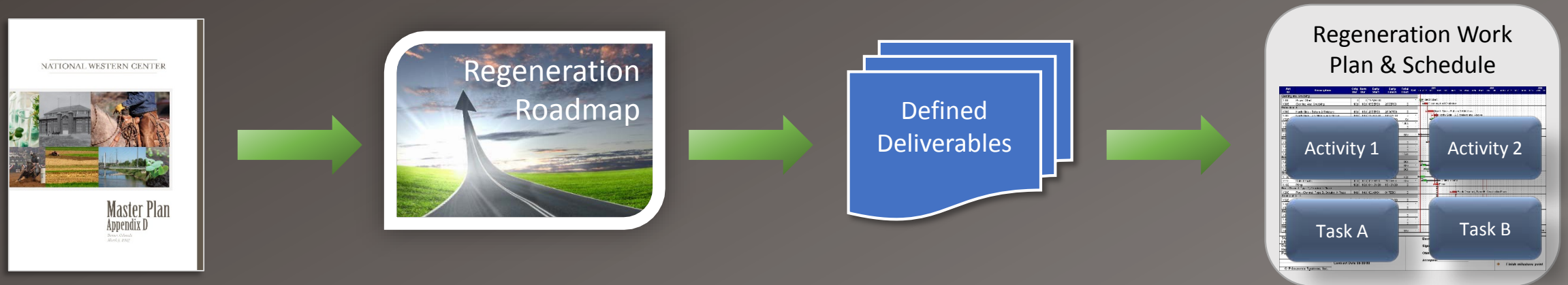
## National Western Center Master Plan Appendix D

- Sustainability and Regeneration Framework
- 9 Categories – aligned with the NWC Guiding Principles
- 63 Goals

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## How do we get from Appendix D to a defined Work Plan?



Start ->	Step One	Step Two	Step Three
Appendix D of the Master Plan outlines 63 regeneration goals.	Translate into the Regeneration Roadmap, a list of actionable goals mapped to the overall NWC workplan.	Define the discrete deliverables that will be utilized to achieve or activate each goal and the metrics and indicators we will use to track them.	Develop the Work Plan with list of activities to deliver the deliverables defined in Step Two. Regeneration-specific tasks must be synchronized with the broader NWC Work Plan activities.

## Some goals will be easier than others to define a path forward

	Easy	Not So Easy
Goal	<p><b>BPFI 3:</b> Showcase relevant innovation at the NWSS event each year</p>	<p><b>EER 5:</b> Maintain or reduce greenhouse gas emission (GHG) levels, including transportation, at or below 2016 GHG emissions and strive for continuous reduction over time, aiming for alignment with City and County GHG and climate goals</p>
Potential Activities	<ul style="list-style-type: none"> <li>• Create incentive program for display of innovation ag science technologies</li> <li>• Schedule annual planning, coordination and debrief sessions</li> </ul>	<ul style="list-style-type: none"> <li>• Identify GHG sources in BAU and future development</li> <li>• Develop baseline 2016 GHG model</li> <li>• Study GHG mitigation options, run scenario analysis for infrastructure, buildings, transportation, waste management, etc.</li> <li>• Develop long term GHG management plan</li> </ul>

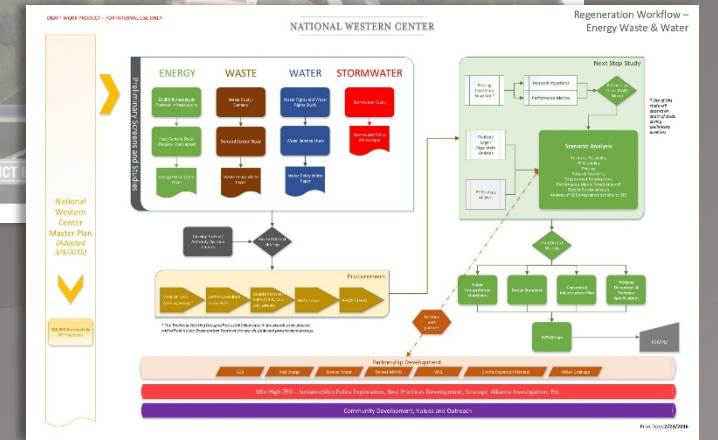
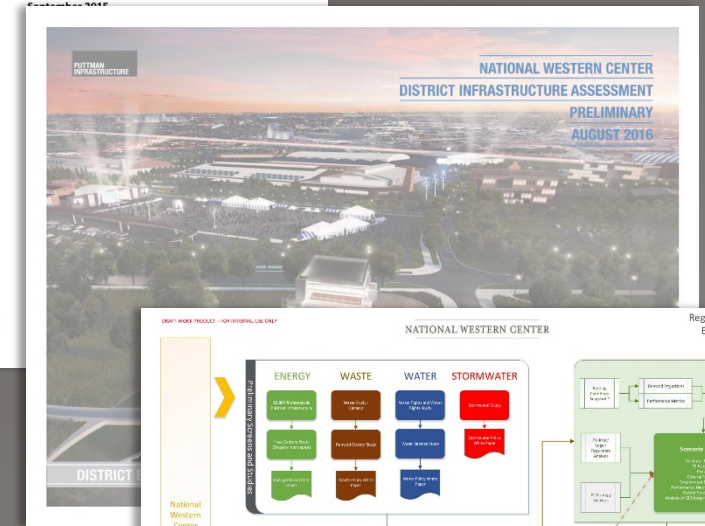
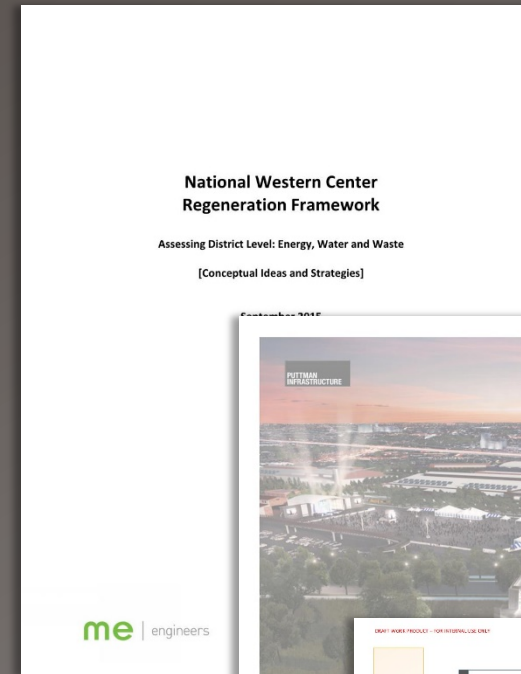
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## Net Zero Study

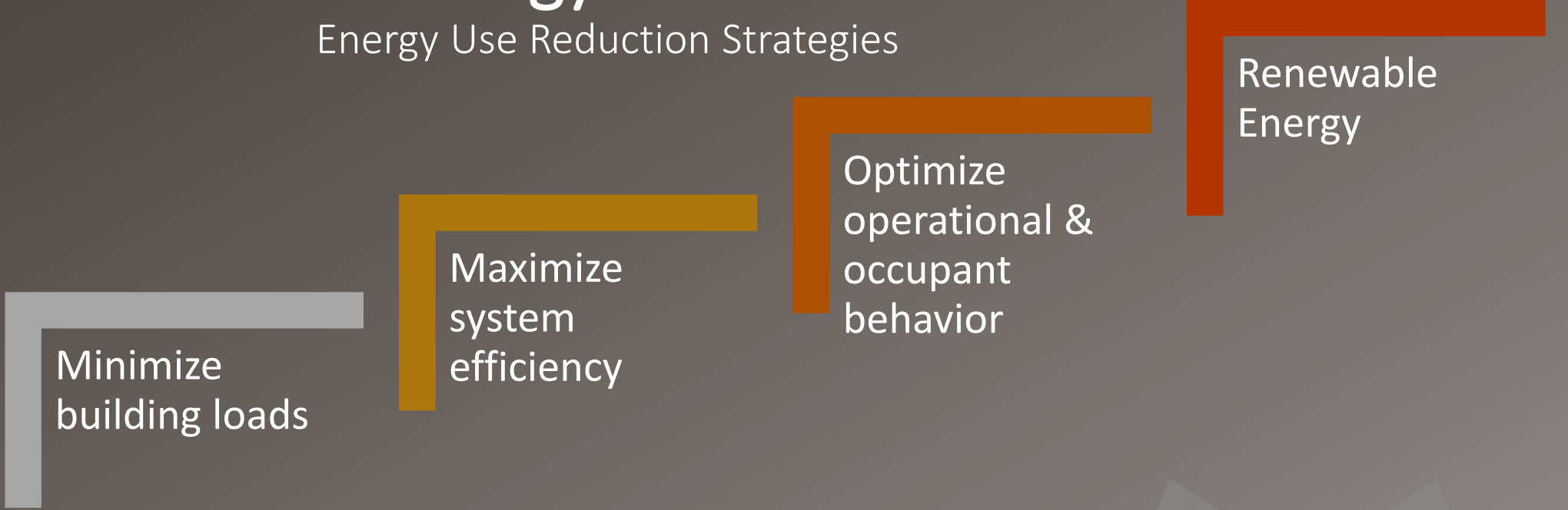
### ENERGY, WASTE & WATER

- ME Engineers Report - **COMPLETE**
- Puttman Infrastructure Study - **COMPLETE**
- Next Step: Net Zero Study
- Delgany Interceptor Study



## Energy Ladder

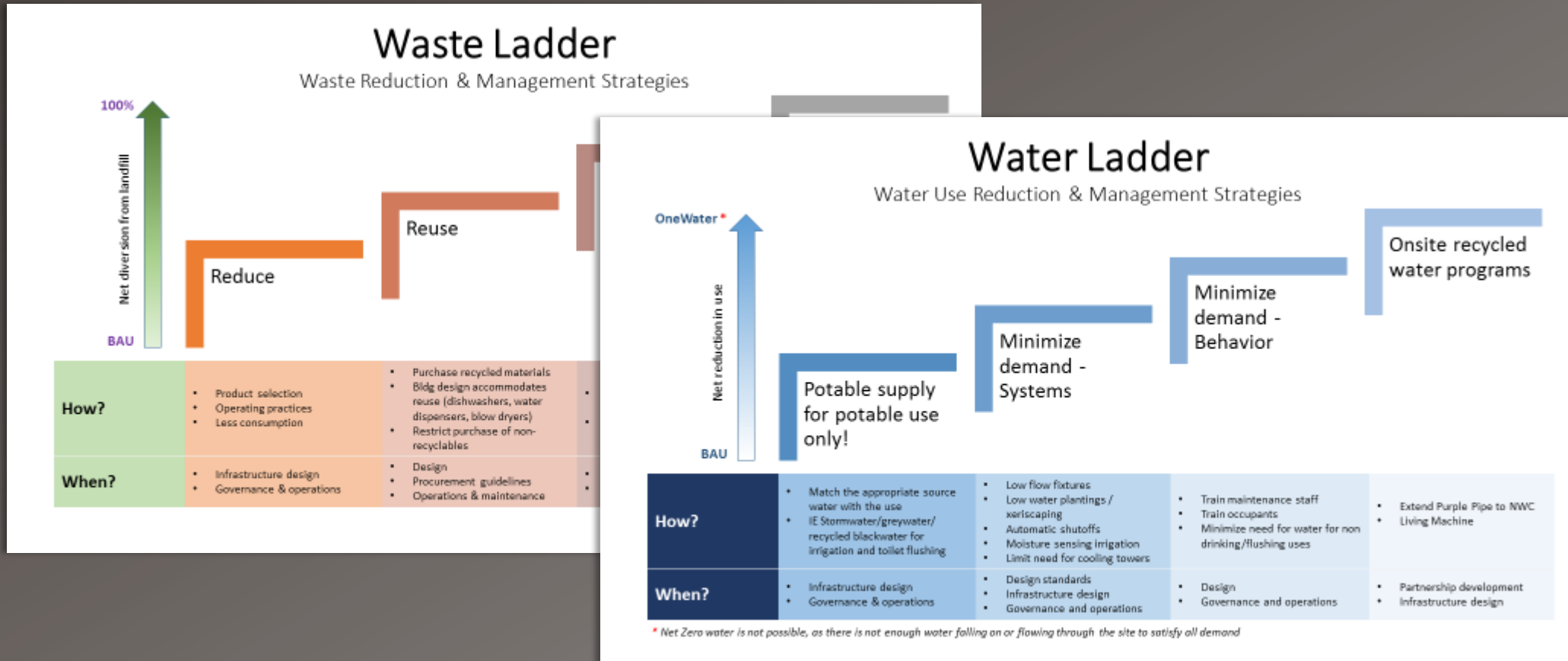
Energy Use Reduction Strategies



<b>How?</b>	<ul style="list-style-type: none"> <li>• Program right-sizing</li> <li>• Building orientation</li> <li>• Building design</li> <li>• Building materials</li> </ul>	<ul style="list-style-type: none"> <li>• District systems</li> <li>• High efficiency heating &amp; cooling</li> <li>• Low energy fixtures</li> </ul>	<ul style="list-style-type: none"> <li>• Building automation systems</li> <li>• Lighting controls</li> <li>• Governance/ operational guidelines</li> </ul>	<ul style="list-style-type: none"> <li>• Solar?</li> <li>• Wind?</li> <li>• Geothermal?</li> <li>• Sewer heat recovery?</li> <li>• Waste to energy?</li> </ul>
<b>When?</b>	<ul style="list-style-type: none"> <li>• Design/build</li> </ul>	<ul style="list-style-type: none"> <li>• Design</li> <li>• Procurement guidelines</li> <li>• Operations &amp; maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Design</li> <li>• Governance</li> <li>• Operations &amp; maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Design</li> <li>• After the three prior steps are resolved!</li> </ul>



## Waste and Water



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## Work Plan

Activity	Deliverable	2016		2017				2018
		Q3	Q4	Q1	Q2	Q3	Q4	Q1
Regeneration Roadmap	Regeneration Roadmap	Yellow	Yellow	Grey	Grey	Grey	Grey	Grey
Net Zero Study	Resource white papers; design standards; infrastructure plan; metrics recommendations; public interpretation guidelines; operational guidelines	Grey	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
Delgany Interceptor Study	Sewer Pipe Relocation Options Sewer Heat Recovery Options	Grey	Orange	Orange	Grey	Grey	Grey	Grey
Partnership Development	Ongoing development of new relationships and partnerships	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
MileHighZED	Best practice sharing, regulatory support	Pink	Pink	Pink	Pink	Pink	Pink	Pink
Community Outreach	Community education, feedback, engagement and involvement	Blue	Blue	Blue	Blue	Blue	Blue	Blue
Additional Tasks, as developed through Regen Roadmap <i>(TBD)</i>		White	White	White	White	White	White	White
Future P3 Analysis <i>(TBD)</i>	P3 Recommendations	White	White	White	White	White	White	White

## The Team

We have deep expertise to work with the chosen teams:

- CSU continues commitment to regeneration and can provide existing knowledge, new research
- City of Denver provides broad agency support with deep technical experience across the spectrum of planning, design and construction
- NREL provides technical assistance, helps tell the story and share best practices
- Denver Water, Metro Wastewater bring technical expertise, vision

This is a unique combination...





## Q & A

