Innovation in Highway Construction

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Who are we?

- Design-Builder for our group
  - We also work for other clients
- $11.7B awarded in construction in North America
- $6.7B of that has been completed, with a current backlog of about $5B
- Globally, over the life of the company: 3,100 miles of rail, 320 miles of tunnels, 17,700 miles of highways
Challenges

- Separating the “cool” from the beneficial
- Low margin business, yields little room for robust R&D
- Price competition awards
- Industry is not conducive to “product” innovation
  - Technical specifications
  - Public record bids
Opportunities

- Health and Safety
- Sustainability
- O&M and life-cycle considerations
- Productivity in small chunks
  - Often project specific
- Improvement in materials
  - Through testing technology
- Monitoring of assets—also a challenge due to rapidly evolving technologies
How We R&D

- Robust R&D not feasible
- Farm the ideas at the ground level
- Incentivize Innovation
- Provide a forum for nurturing the ideas
- Support with additional resources to develop the idea
How to Improve

- P3’s, by nature, encourage innovation
  - Every other contracting structure suppresses it
- Public sector must open its mind
- Develop a way to protect IP
Ideas Being Explored/Implemented

- Drones
- Jobsite safety technology
- Electronic Information Collection & Distribution
  - Truck tickets, Plan updates, etc
- BIM
  - Highways provide different benefits than buildings
  - More beneficial to construction.....for now
    - Clash detection, virtual phasing
- Harnessing traffic forces for energy
- Robotics