Agenda

- Easy Street AV Shuttle Project
- Campus Solar
- Mines Master Plan Phase 2
  - Mines Park Expansion/Renovations Feasibility and timing
- Daycare Center Status (new location feasibility)
- OZ Architecture
  - Labriola Innovation Complex (final design)
  - Beck Venture Center Design Presentation 1
WHAT IS THE ALLIANCE?

A 501(c)3 non-profit founded to **create technology partnerships** that prove next-generation solutions to improve Colorado’s quality of life.

We focus on **actionable innovation** through education, partnership building, and co-development of solutions.
PROJECT VISION

**Deploy Meaningful, Autonomous Service**
Provide the nation’s largest autonomous mobility service across multiple use cases

**Create Living Labs**
Incorporate a range of novel technologies that can leverage the autonomous vehicle micro transit service

**Educate**
Capture and communicate all of the data and lessons learned in order to create the world’s first roadmap to prepare the city, and the industry, for robust autonomous transit in the next few years
SUPPORTIVE STAKEHOLDER ECOSYSTEM

Local Organizations
- Golden
- Colorado School of Mines
- Regional Transportation District (RTD)
- National Renewable Energy Lab (NREL)
- Colorado Department of Transportation

Private Companies
- EasyMile
- Stantec
- Panasonic
- Siemens
- SmartNet

Industry Groups
- ITS America
- AASHTO
- APTA
- NLC
- NACTO
- PAVE
DRIVERLESS SHUTTLES INTRODUCTION
EZ10 AUTONOMOUS SHUTTLE

- Driverless and electric shuttle
- Built-in automatic access ramp
- Up to 6 people seated w/ seatbelts
- Pre-mapped network of roads
- 10h autonomy, 7h with A/C
- 30 vehicles in the US (150 worldwide)
- Other vehicles’ maximum speed
- 60+ deployments in the US (350+ worldwide)

EZ10 maximum speed
WORLD’S MOST DEPLOYED DRIVERLESS SHUTTLE

150+ Shuttles worldwide

> 500,000mi Autonomous driving

> 350 Deployments In 30+ countries
GOLDEN ROUTES

- **Mines Park Route**: Connecting Mines Park with Brown Hall and other campus buildings.

- **Downtown Route**: Connecting Mines campus buildings with downtown (Arapahoe St).

- **Parking Lot Route**: Connecting K lot to Guggenheim Hall. Storage and charging will be located at former Ford dealership.
ROUTE DETAILS
## OPERATING SCHEDULE

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Time</th>
<th>Activity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6:30-7</td>
<td></td>
<td>Mines Park</td>
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<tr>
<td></td>
<td>7:30-8</td>
<td>Mines Park</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9:30-10</td>
<td>Charging</td>
<td>Mines Park</td>
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<tr>
<td>3</td>
<td>11:30-12</td>
<td>Mines Park</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>12:30-12:30</td>
<td>Lot K</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>2:30-3:30</td>
<td>Lot K</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3:30-4:30</td>
<td>Downtown</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>4:30-5:30</td>
<td>Downtown</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5:30-6</td>
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</tbody>
</table>

### Notes
- Pre- or Post Operations Activities
- Operations
- Charging
## IMPLEMENTATION SCHEDULE

<table>
<thead>
<tr>
<th>Month</th>
<th>Activities</th>
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<tbody>
<tr>
<td>May/June</td>
<td>Set-up storage site with charger (Mines/Siemens)</td>
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<tr>
<td></td>
<td>Complete infrastructure updates (Mines/Golden)</td>
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<td></td>
<td>Obtain Federal and State regulatory approvals (EM)</td>
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<tr>
<td>July</td>
<td>Set-up vehicles on site (EM)</td>
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<td>Hire and train safety operators (Mines/EM)</td>
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<td></td>
<td>Kick-off Communications strategy (Alliance/Mines-led)</td>
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<td></td>
<td>Update RTD website and trip planner to include AV shuttle service (RTD)</td>
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<tr>
<td>August</td>
<td>Soft and hard launch (All!)</td>
</tr>
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Solar 2020

- Jackson Street Residence 56 kW
- New parking garage 74 kW
Proposed New Solar 2021

6 buildings (1012 kW)
- Green Center
- Korell Athletic Center
- Student Rec Center
- General research lab
- Shops II
- Steinhauer Fieldhouse

1 parking canopy (489 kW)
- Stermole complex

Total: 1500.9 kW
Annual prod: 2,114,727 kWh
Solar
Next Steps
2021-2022

• March – July 2021
• Steinhauer Structural Analysis
• Xcel Rebate Application
• Amend Solar Development and powerED Agreements
• Solar Development Finalized
  • Carport technical studies
  • Survey around ground mounts
  • Planning and zoning
Mines Master Plan Phase 2

PHASE 2: 2022-2024

1. RESEARCH BUILDING 1
2. LAKES LIBRARY EXPANSION
3. RESIDENCE HALL VII
4. RESIDENCE HALL VIII
5. RESIDENCE HALL IX
6. DINING AND INDOOR RECREATIONAL FACILITY
7. PARKER STUDENT CENTER EXPANSION
8. MINES PARK APARTMENTS
9. MINES PARK CENTER EXPANSION
10. MINES PARK CHILD CARE CENTER
11. BASEBALL/SOFTBALL CONCESSIONS BLDG
12. EDGAR MINE UPPER SITE BLDG

CLASSROOM UPGRADES – IMMEDIATE PRIORITY

LEGEND

- EXISTING AND PHASE 1
- PROPOSED PHASE 2 RENOVATIONS
- PROPOSED PHASE 2 NEW BUILDINGS
- OFF-CAMPUS BUILDINGS
Mines Park Expansion/Renovations

Master Plan Phase 2

• **What are we doing?** Looking at the feasibility and timing to address the deferred maintenance in existing buildings and increase the number of apartment-style beds at Mines Park for upper-division and graduate students.

• **What is the Process Schedule?**
  ▪ April 2021 Issue a Request for Qualifications (RFQ)
  ▪ June 2021 Identify a list of short listed firms
  ▪ June/July 2021 Determine the feasibility and timing. If feasible, then
    – July 2021 Issue a Request for Proposals (RFP)
    – Late Fall 2021 Commence Pre-Development Activities
Daycare Center (1801 Moly Road Feasibility)
OZ Architecture
Next meeting July 28, 2021, 6:00pm

Past meeting presentations and schedules can be found at https://www.mines.edu/operations/community-news/