ACKNOWLEDGMENTS

THE FOLLOWING CONTRIBUTED TO THE UTAH STATE UNIVERSITY INNOVATION CAMPUS DISTRICT PLAN:

FOCUS GROUP INPUT

Utah State University & Community Partners
Cordell Bant – North Logan City
Ben Barnett – USU Facilities
Todd Beulter – Cache Valley Transit
David Christiansen – USU Electrical & Computer Engineering Dept
Zachary Cook – USU Facilities
Jayton Crites – Cache County Active Transportation
Dwight Davis – USU Vice President for Business & Finance
Jana Doggett – USU Deputy Athletics Director
Alden Erickson – USU Parking & Transportation Services
Zen Hola – Innovation Campus Student Employee
Kirt Hoggan – Cache-Logan Water Authority
Russ Isbey – Logan City
Mark Hoyt – USU Facilities, Electrical Engineer
Jim Huppin – USU Facilities, Landscape Architect
Steven Jonson – USU Housing & Residence Life
Kent Johnson – USU Research Foundation SDL
Brian Koch – North Logan City
Michael Kuhns – USU Chief Police
Alec Larson – USU Office of Sustainability
Paul Lindhardt – Logan City
Lynden Leslie – USU Research Foundation
Alain Lu – North Logan City
Mike McGeeley – USU General Counsel
Shane Maughan – USU Fire Marshal
Megan McIlvain – Innovation Campus Student Employee
Mark McNeel – USU Vice President of Research

Steering Committee
Utah State University
Jordy Guth – Co-Chair, Assistant Director of Planning
Joseph Jenkins – Co-Chair, Vice President for Business and Finance
Joseph Beck – Architects Facilities Planning, Design & Construction
Dave Corely – Vice President for Business and Finance
Charles Darrell – Associate Vice President of Facilities
Kent Hales – USU Research Foundation
Richard Iriony – Assoc. VP & Assoc. Dean, Research & Graduate Studies
Andi McCabe – Assistant Provost
Quinn Whitaker – Structural Eng’r, Facilities Planning, Design & Construction

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Mike McGeeley – USU General Counsel
Shane Maughan – USU Fire Marshal
Megan McIlvain – Innovation Campus Student Employee
Mark McNeel – USU Vice President of Research

Trish Moebler – USU Real Property
Sean Michael – USU Landscape Architecture & Environmental Planning
Matt McNeal – Innovation Campus Student Employee
James Nye – USU Parking and Transportation Services
Jordan Oldham – North Logan City
Reid Olson – USU Facilities, Central Energy Plant Manager
Jamie Pearson – USU Facilities
David Peterson – USU Facilities
Kate Stephenson – USU Center for Civic Engagement & Service Learning
Nate Stokes – Woodbury Corporation
David Toddwell – USU IT Team Coordinator
Jeffery Turley – USU Facilities, CADD System Manager
Philip Walde – USU Landscape Architecture & Environmental Planning
Jeffrey Wall – USU Research Foundation
Jon Wells – Cache Logans Water Authority
Lauren Word – Innovation Campus Student Employee
PLANNING CONSULTANTS

**MHTN Architects**
- Kyle Taft  Principal-in-Charge
- Ryan Wallace  Architect/Campus Planner
- Randy Boudrero  Landscape Architect
- Robert Pinon  Planning Architect/High-Tech Insight
- Sarah Miller  Predesign Architect
- Glen Beckstead  Cost Estimator

**Fehr & Peers (Traffic)**
- Preston Stinger  Professional Transportation Planner

**Van Boerum & Frank (Mechanical)**
- Ray Vernon  Mechanical Engineer
- Martin Carillo  Mechanical Engineer

**Spectrum Engineers (Electrical)**
- Chris Kobayashi  Electrical Engineer

**J-U-B (Civil)**
- Chris Slater  Civil Engineer
01 INTRODUCTION
The Utah State University Innovation Campus was established in 1987 to foster development of research and technology-based enterprises, in association with the University. During the past 30 years, the campus has grown from an initial 38 acres to over 150. At this time, the campus has 19 buildings that total approximately 469,000 gross square feet. Tenants and owners are involved in research and commercial businesses ranging from space technology to alternative power to synthetic bioproducts.

As part of University, the Innovation Campus provides beneficial access to the institution’s faculty, students and collaborators in an environment that supports innovation and creativity. In turn, business enterprises on the Innovation Campus provide USU students opportunities for employment and internships that are a valuable supplement to their education.

The Innovation Campus is located directly north of the USU main Logan campus. It is irregularly-shaped and extends to these boundary streets: 1800 North (north), 1400 North street (south), 400 East (west), 1200 East (east). The northwest portion of the campus (West District) was the first to be developed. The center portion (Central District) has seen active development in the past several years. The eastern portion (East District) is still largely undeveloped, and contains large green fields.
The planning process was guided by a Steering Committee comprised of Innovation Campus stakeholders. The stages of the process included the following:

1. Background Information. Significant background information regarding the Innovation Campus provided by USU Campus Planning was studied for its relevance to the current planning effort.

2. Kick-Off/Visioning. The active phase of the process began with a Kick-Off/Visioning session with the Steering Committee.

3. Focus groups. Fourteen focus groups were conducted to gather broad input from stakeholders.

4. Analysis. Gathered information was analyzed and summarized as a foundation for conceptual planning.

5. Conceptual planning. In an iterative process, planning concepts were presented, discussed and refined with input from the Steering Committee. A town hall meeting was held for public input.

6. Documentation. The planning process and outcomes were formulated into a document that was completed with input from the Steering Committee.

PLAN PURPOSE

Since the establishment of the Innovation Campus, multiple documents have provided planning and design guidance (see list at right). The intent of this new planning study is to provide more specific projections for the future Innovation Campus. The scope of the District Plan includes:

• a statement of the mission and vision for the Innovation Campus
• analysis and documentation of current conditions, buildings and planning forces
• a summary of functional needs and potential future building types and sizes
• a plan that outlines the phased development elements, utilities, open space and building locations
• planning and design guidelines that are coordinated with past and current USU and Innovation Campus standards and guidelines.

PLANNING PROCESS

5. Conceptual Planning. In an iterative process, planning concepts were presented, discussed and refined with input from the Steering Committee. A town hall meeting was held for public input.

6. Documentation. The planning process and outcomes were formulated into a document that was completed with input from the Steering Committee.

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PRIOR PLANNING & DESIGN GUIDE DOCUMENTS, INNOVATION CAMPUS

Declaration of Covenants, Conditions and Restrictions of the Utah State University Research and Technology Park (1985)

Research and Technology Park Utah State University Architectural Guidelines (1985)

Utah State University Innovation Campus Master Plan (2004)

Utah State University Innovation Campus Site Development and Landscape Guidelines (2005)

Revised & Restated Declaration of Covenants, Conditions and Restrictions of the Utah State University Research and Technology Park now known as Innovation Campus (2011)

Utah State University Signage Requirements (2011)

Innovation Campus Development Guidelines (2011)

DOCUMENT ACRONYMS/ABBREVIATIONS

USU: Utah State University
IC: Innovation Campus
CAAS: College of Agriculture and Applied Sciences
USTAR: Utah Science Technology and Research
USURF: Utah State University Research Foundation
**INNOVATION CAMPUS AT-A-GLANCE**

**GENERAL**
- Established: 1987
- Original Size: 38 acres

**CURRENT AREA:**
- West District: 42 acres
- Central District: 48 acres
- East District: 66 acres

**BOUNDARY STREETS**
- North: 1800 North
- South: 1400 North
- East: 1200 East
- West: 400 East

**CAMPUS AREA**
- In North Logan City: 112 acres
- In Logan City: 42 acres
- Developed: 70 acres
- Undeveloped: 84 acres

**EXISTING BUILDINGS**
- Quantity: 28
- Construction Dates: 1967 to 2018
- Total Square Feet: 726,009

*Includes 26 completed buildings and two under construction; does NOT include one planned future building.

**BUILDING OWNERSHIP**
- USU: 10
- Woodbury: 12
- USURF: 4**
- Other: 2

**ELEVATION**
- High Point: 4,610 feet
- Low Point: 4,565 feet
- Differential on Site: Approx 65 feet

**INNOVATION CAMPUS DISTRICTS**

- **West District:**
  - USU: 10
  - Woodbury: 12

- **Central District:**
  - USURF: 4

- **East District:**
  - Other: 2

**NOTE:**
- **Includes 1 under construction; does NOT include 1 planned future building.**


LOCATED ON THE BOUNDARY BETWEEN LOGAN AND NORTH LOGAN CITIES, THE INNOVATION CAMPUS IS ADJACENT TO THE PRIMARY URBAN, COMMERCIAL CENTER FOR THE REGION, MUCH OF WHICH REMAINS IN ACTIVE AGRICULTURAL USE.

THE CAMPUS IS LOCATED APPROXIMATELY 80 MILES FROM SALT LAKE CITY AND CAN BE REACHED BY CAR FROM THE CITY AND ITS INTERNATIONAL AIRPORT IN ABOUT 90 MINUTES. A SHUTTLE SERVICE OPERATING BETWEEN Cache Valley AND Salt Lake City PROVIDES TRANSIT ACCESS TO THE CAMPUS AS WELL. FOUR MILES FROM THE USU CAMPUS, THE LOGAN-CACHE AIRPORT PROVIDES ACCESS FOR LOCAL GENERAL AVIATION NEEDS.

Cache Valley transportation methods are well-developed, providing public, active and private options. Cache Valley Transit District provides an excellent amenity for area residents, offering a public bus service throughout the region free of charge. Several regional trails and bike routes provide easily accessed and safe active transportation routes throughout the valley, and are constantly being improved and expanded. Several highways traverse the valley in east-west and north-south directions – highlighted by Highway 89 which covers the entire state between its northern and southern borders – providing easy, efficient access to Logan and North Logan Cities. Moreover, each city features a well-developed street grid system that is easy to understand and navigate.
LOCAL CONTEXT

Cache Valley, named for the fur stashes made by many early trappers, is a semi-agricultural valley which spans between northern Utah and southeast Idaho. Following habitation by the Shoshone Indians and others, the valley was used for annual gatherings of mountain men and was formally settled by early Mormon Pioneers.

The valley is bounded by the Bear River Mountain Range on the east and the Wellsville range on the west, both of which are extensions of the Wasatch Range. The earliest settlement and the valley’s largest municipality, Logan, is situated in the south-east quadrant of the valley. The Bear River flows through the valley and is partially fed by the Little Bear and Logan Rivers.

Cache Valley has a population of over 112,000 people per the 2010 census, with nearly 49,000 people in the city of Logan.

Utah State University, the state’s land-grant University founded in 1888, sits on a prominent rise at the mouth of Logan Canyon and holds the most prominent geographic location in the entire valley.

The USU Innovation Campus is located north and west of the main campus and lies within two municipalities, Logan and North Logan. The campus is bounded on the east by 1200 East, on the west by 400 East, 1400 North in Logan on the south and approximately 1800 North in North Logan on the north. A gentle slope of approximately 2% or 150 feet, occurs across the site from the southeast to the northwest. The high end of the campus sits at elevation 4710 on the southeast to elevation 4560 on the northwest corner.
LOCAL CONTEXT (continued)

Two canals traverse the site. The lower canal forms a portion of the west boundary. The Highline Canal runs through the upper (east) portion of the site from 900 to 1000 East, and is used as a storm water collection system for both Logan and North Logan cities.

A portion of the Innovation Campus within the Logan City boundary is zoned Commercial. The eastern quadrant in the city is zoned Public Land. 1400 North is a commercial corridor up to 600 East. North Logan City has zoned the campus property within the city limits as High Tech Manufacturing and Research, except for the experimental farm which is zoned Agricultural. Residential housing is north and east of the campus. The south and west sides of the campus are surrounded by commercial uses, including the Cache Valley Mall and several major retail outlets to the west. The Logan Regional Hospital is very near the west end of the campus, south of 1400 North.

The Innovation Campus abuts the North edge of the main USU campus. Major access to the campus core to the south is from 800 East, which leads past the athletic facilities to the Old Main building and the Quad. The Innovation Campus is accessible from main campus by walking, private transportation, the Aggie Shuttle or the Cache Valley Transit District (CVTD) bus system. The CVTD Center is west of the main campus southern edge, near Main Street.
Understanding surrounding land uses is an important aspect of planning for the future of a campus. The Innovation Campus is bifurcated by the municipal boundary between Logan and North Logan Cities and shares its campus boundary with a wide variety of land uses. Generally speaking, the southern edge of the campus is surrounded primarily with commercial and institutional uses (Utah State University, Logan Regional Hospital and a church), while the northern boundary is primarily surrounded by residential and agricultural uses. These land uses are likely in response to 1400 North being a primary arterial connecting to Logan’s commercial core and the Cache Valley Mall.

The relationship between the surrounding uses and the campus is important and must be understood prior to planning future campus building and site element locations. Certain uses are simply not compatible adjacent to one another and the Innovation Campus is no exception to this phenomenon. While the land owned by the University and therefore the state is technically not subject to local municipal zoning rules and regulations, there is a strong desire on the part of the campus to act as a good neighbor and be considerate in planning for future needs. This includes consideration of building scale, orientation, uses, and activities in planning efforts, and the impacts which they may have on surrounding residents and businesses.

For example, commercial uses can act as amenities for campus employees to meet basic shopping and entertainment needs. These may include eating establishments, convenience stores, dry cleaning and so forth. Additionally, building scale and setback requirements for commercial uses tend to be less restrictive than those of residential uses, which generally require lower scale and deeper setbacks. Other uses such as institutional and agricultural are considered on a case by case basis.

In some campus areas, logical boundaries such as canals and roads exist; while in other locations the campus directly abuts residential or agricultural uses. Design elements such as landscape buffers and fencing can be used to mitigate impacts which may be construed as negative by local residents. Building scale and setback from the edge of campus should be carefully considered to offer a clearly legible edge of campus and avoid negative impacts to adjacent neighborhoods.
MUNICIPAL SERVICES

Because the Innovation Campus is located on the boundary of Logan and North Logan cities and development occurs in both, it is important to understand the differences in service provision, development fees, etc., for each municipality. The chart on these pages summarizes the various services provided, and the requirements for each city.

Logan/North Logan Municipal Service Providers and Fees

<table>
<thead>
<tr>
<th>Service</th>
<th>LOGAN CITY</th>
<th>NORTH LOGAN CITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Culinary Water</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service provider</td>
<td>Logan City Water</td>
<td>North Logan City Water</td>
</tr>
<tr>
<td>Impact Fees</td>
<td>Assessed by meter size 1&quot; = $3,359 1½&quot; = $6,639 2&quot; = $10,621 3&quot; = $16,704 4&quot; = $27,840</td>
<td>Deposits required at time of permitting. Varies based on size of the, meter type &amp; building SF. New buildings, additions of more than 400 SF &amp; remodels more than $2,000 SF - $1,100. All others - $50. Impact fees for meters larger than 4&quot; must be approved by City Council.</td>
</tr>
<tr>
<td>Special requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gas</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service provider</td>
<td>Dominion Energy / Questar Gas</td>
<td>Dominion Energy / Questar Gas</td>
</tr>
<tr>
<td>Impact Fees</td>
<td>6%</td>
<td>NA</td>
</tr>
<tr>
<td>Special requirements</td>
<td></td>
<td>Install primary conduit through utility corridors, transformer pad, secondary conduit &amp; secondary service.</td>
</tr>
<tr>
<td><strong>Sewer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service provider</td>
<td>Logan City</td>
<td>North Logan City</td>
</tr>
<tr>
<td>Impact Fees</td>
<td>Assessed by meter size 7&quot; = $884 2&quot; = $2,829 4&quot; = $8,839</td>
<td>Wastewater collection impact Fees for meters larger than 4&quot; will be calculated using the equation (usage/248 gpd) x 884</td>
</tr>
<tr>
<td>Special requirements</td>
<td></td>
<td>Install 4&quot; conduit ductbanks through utility corridors.</td>
</tr>
</tbody>
</table>

Logan/North Logan Municipal Service Providers and Fees (continued)

<table>
<thead>
<tr>
<th>Service</th>
<th>LOGAN CITY</th>
<th>NORTH LOGAN CITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service provider</td>
<td>Logan City Light &amp; Power</td>
<td>Rocky Mountain Power</td>
</tr>
<tr>
<td>Impact Fees</td>
<td>Both electrical hookup &amp; electrical impact fees based on voltage, phase &amp; size of requested service. Currently, for extensions of 3-phase primary distribution (12.5 kV) beyond the first 150' there is an additional impact fees range from $165-$407. Impact fees range from $159-$2192.</td>
<td>Rocky Mountain Power will provide an Electric Service Requirement Agreement. Depending on the installation there may be charges required for initial service associated with the installation of service facilities that are not offset by the extension allowance (customer advance).</td>
</tr>
<tr>
<td>Special requirements</td>
<td>Install primary conduit through utility corridors, transformer pad, secondary conduit &amp; secondary service.</td>
<td>Install primary conduit through utility corridors, transformer pad, CT section, meter socket &amp; secondary conduit.</td>
</tr>
<tr>
<td><strong>Telecom</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service provider</td>
<td>USU Telecom Network</td>
<td>USU Telecom Network</td>
</tr>
<tr>
<td>Impact Fees</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Special requirements</td>
<td>Install 4&quot; conduit ductbanks through utility corridors</td>
<td>Install 4&quot; conduit ductbanks through utility corridors.</td>
</tr>
</tbody>
</table>

Logan/North Logan Municipal Service Providers and Fees (continued)

<table>
<thead>
<tr>
<th>Service</th>
<th>LOGAN CITY</th>
<th>NORTH LOGAN CITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Secondary Water (Canal)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logan North Heike Canal</td>
<td>$230 assessment in 2016</td>
<td>20 shares</td>
</tr>
<tr>
<td>Highline Canal</td>
<td>$600</td>
<td>Shares unknown</td>
</tr>
<tr>
<td>Heike Canal</td>
<td>450 shares at current assessment of $45/share = $20,250</td>
<td>56 shares at current assessment of $45/share = $2,520</td>
</tr>
</tbody>
</table>

*Eventual plan is to irrigate the entire Innovation Campus using secondary water from these two canals. Based upon buildout and current conditions, USU is understood to have ample shares to accomplish this.
CLIMATE

ANNUAL TEMPERATURE
- average year round: 46 degrees Fahrenheit
- average high: 88 degrees Fahrenheit
- average low: 12 degrees Fahrenheit

ANNUAL PRECIPITATION
- average inches: 18.8

ANNUAL SNOWFALL
- average inches: 55

ANNUAL SUNSHINE
- average days: 222

WIND, SOLAR & VIEWS
The area’s prevailing winds come from the south during most of the year. Winter storms tend to come from the northwest into the campus. The prevailing winds average between 8 to 12 miles per hour.

The 222 average days of sunshine per year is higher than the national average. The sunlight per day during the summer is constant and covers a wide range of angles as shown in the diagram on the facing page. The amount of winter sun per day is shorter and has a narrower range of angles.

The design of the remainder of the site should take into consideration the magnificent views of the eastern mountain range.
WEST

The Innovation Campus views to the west are expansive, across the pastoral Cache Valley toward the distant Wellsville Mountains.

EAST

East of the Innovation Campus, the Bear River Mountain Range and Logan Canyon are very near and form a prominent backdrop for campus development. Proximity to the mountains and associated outdoor recreation opportunities contribute to the quality of life in Cache Valley.
The pond is a stormwater capture strategy as well as an attractive landscape amenity in the northwest, older section of the Innovation Campus. It is a feature that many people mention when asked about the positive elements of the campus.

The canal, owned by Cache Highline Water Association (CHWA), is used for collecting spring water and storm water run-off. In the future, trails may be built along the canal within the Innovation Campus boundary that connect with those on the USU main campus and in Logan City.

The eastern portions of the campus have historically been leased for agricultural production; this is likely to continue until future development occurs. The fields and pastures about existing residential areas along the north and east campus boundaries.

The USU cross country team has used the campus as a training area and competition venue for several years. The course is an amenity that is used by community members for walking and running. It is hoped that the training course function can be integrated into the long-term campus plan.
One of the more recent campus developments, this iconic building is expressive of its interior lab functions: its large size and scale, and its LEED Gold certification for sustainable design, are an indication of the University’s desired direction for future campus construction.

The northeast zone of the campus is edged by residential development that has an agrarian feel. Future campus development must be thoughtfully planned to complement these quiet areas, with landscaped buffers and low-density planning.

Grand Avenue features Complete Streets design principles, with integrated pedestrian paths, landscaping and storm water channels. It moves away from the automobile-centric planning used in initial campus development, toward a future focused on active transportation.

The Electric Vehicle Station and research track typifies the forward-thinking research that is desired for the Innovation Campus.
**EXISTING INNOVATION CAMPUS BUILDINGS**

<table>
<thead>
<tr>
<th>Map ID</th>
<th>Description</th>
<th>GSF</th>
<th>Owner</th>
<th>Tenant</th>
<th>USU F</th>
<th>Addr</th>
<th>Address 1</th>
<th>Address 2</th>
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</thead>
<tbody>
<tr>
<td>006</td>
<td>USU Exp Sta Greenhouse</td>
<td>2000</td>
<td>USU</td>
<td>USU</td>
<td>1750</td>
<td>500 E 1600 N</td>
<td>North Logan</td>
<td></td>
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<tr>
<td>016</td>
<td>Ag Sys Tech 101</td>
<td>2000</td>
<td>USU</td>
<td>USU</td>
<td>1750</td>
<td>500 E 1600 N</td>
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<td></td>
</tr>
<tr>
<td>004</td>
<td>BEE LAB 101</td>
<td>2000</td>
<td>USU</td>
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<td>500 E 1600 N</td>
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<td>007</td>
<td>&amp; Ed 101</td>
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<td>USU</td>
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<td>USU</td>
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<td>North Logan</td>
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<tr>
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<td>USU</td>
<td>1750</td>
<td>500 E 1600 N</td>
<td>North Logan</td>
<td></td>
</tr>
</tbody>
</table>

**ACRONYMS**

- **USURF**: Utah State University Research Foundation
- **USTAR**: Utah Science Technology and Research

**Currently planned auditorium addition will increase the building SF by 7000 to 64,195.**

---

**USU INNOVATION CAMPUS | DISTRICT PLAN**

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**EXISTING CONDITIONS**

- **ICSH**: Innovation Campus Spring House
- **USURF**: USU Research Foundation
- **USTAR**: Utah Science Technology and Research Foundation
- **ACRONYM**: American Council on Education
- **IC1780**: Innovation Campus 1780
- **IC1787**: Innovation Campus 1787
- **IC1790**: Innovation Campus 1790
- **IC1500**: Innovation Campus 1500
- **IC1530**: Innovation Campus 1530
- **IC1525**: Innovation Campus 1525
- **IC1575**: Innovation Campus 1575
- **IC1695**: Innovation Campus 1695
- **IC1747**: Innovation Campus 1747
- **IC1740**: Innovation Campus 1740
- **IC1770**: Innovation Campus 1770
- **IC1750**: Innovation Campus 1750
- **IC1700**: Innovation Campus 1700
- **IC1650**: Innovation Campus 1650

---

**DISTRICT PLAN**

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**INNOVATION CAMPUS MAP 2017**

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**11.15.2017 | PAGE 2.21**
**EXISTING BUILDINGS**

459. Algae Processing & Products (APP)
- **OWNER**: USU
- **TENANT**: USTAR/Algae Processing
- **YEAR BUILT**: 2009
- **INT SF**: 3,152
- **EXT SF**: 3,513
- **ADDRESS**: 459 East 1650 North, North Logan UT 84341
- **USU BUILDING NO.**: 173R
- **BUILDING ABBR.**: APP
- **OTHER NAMES**: Algae Processing & Products

489. Calibration & Optical Research Lab
- **OWNER**: USURF
- **TENANT**: USURF Calibration Lab
- **YEAR BUILT**: 2002 (auditorium addition construction: 2018)
- **INT SF**: 47,195
- **EXT SF**: 17,000
- **ADDRESS**: 489 Research Parkway, North Logan UT 84341
- **USU BUILDING NO.**: 173E
- **BUILDING ABBR.**: IC489
- **OTHER NAMES**: Robert F. Bennett Calibration & Optical Research Laboratory

570. Innovation Campus 570
- **OWNER**: Woodbury
- **TENANT**: USURF
- **YEAR BUILT**: Unknown
- **INT SF**: 10,608
- **EXT SF**: 11,980
- **ADDRESS**: 570 Research Parkway, North Logan UT 84341
- **USU BUILDING NO.**: 173L
- **BUILDING ABBR.**: IC570

575. USURF Admin Building 575 (RPG)
- **OWNER**: USURF
- **TENANT**: USURF Admin
- **YEAR BUILT**: 2003
- **INT SF**: 25,828
- **EXT SF**: 29,649
- **ADDRESS**: 575 East 1600 North, North Logan UT 84341
- **USU BUILDING NO.**: 173G
- **BUILDING ABBR.**: IC575

---

**EXISTING CONDITIONS**

**USU INNOVATION CAMPUS**

**DISTRICT PLAN**

- **DATE**: 11.15.2017
- **PAGE**: 2.23
670. Electric Vehicle Roadway Research
OWNER: USU
TENANT: USU, EVR
YEAR BUILT: 2015
INT SF / EXT SF: 4,709 / 5,139
ADDRESS: 670 East 1550 North, North Logan UT 84341
USU BUILDING NO.: 17
BUILDING ABBR.: EVR

840. Skaggs Research Lab
OWNER: USU
TENANT: USU CASS
YEAR BUILT: 1982
INT SF / EXT SF: 4,459 / 4,826
ADDRESS: 1541 North 800 East, North Logan UT 84341
USU BUILDING NO.: 0840
BUILDING ABBR.: SRL

1500. USURF (future phase)
OWNER: USURF
TENANT: USURF
YEAR BUILT: N/A (future phase)
INT SF / EXT SF: 76,396 (anticipated)
ADDRESS: 1500 North 600 East, Logan UT 84322
USU BUILDING NO.: -
BUILDING ABBR.: IC1500

1525. Convergys
OWNER: Woodbury
TENANT: Convergys
YEAR BUILT: Unknown
INT SF / EXT SF: 24,761
ADDRESS: 1525 Research Parkway, North Logan UT 84341
USU BUILDING NO.: 173Q
BUILDING ABBR.: IC1525

(FUTURE USURF BUILDING WILL HAVE SIMILAR APPEARANCE TO USURF 1530 CURRENTLY UNDER CONSTRUCTION)
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<th>Owner</th>
<th>Tenant</th>
<th>Year Built</th>
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<th>Address</th>
<th>USU Building No.</th>
<th>Building ABBR.</th>
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<tr>
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<td>USURF</td>
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<td>Unknown</td>
<td>2017</td>
<td>76,191</td>
<td>1530 North 600 East, North Logan UT 84341</td>
<td>178A</td>
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<td>USURF</td>
<td>Unknown</td>
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<td>1695. USURF Space Dynamics Lab</td>
<td>USURF</td>
<td>USURF</td>
<td>1994</td>
<td>INT SF / EXT SF</td>
<td>85,638 / 91,884</td>
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<td>1700. Innovation Campus 1700</td>
<td>Woodbury</td>
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<td>Unknown</td>
<td>Unknown</td>
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1780. Innovation Campus 1780

OWNER  Woodbury  
TENANT  Multiple Tenants  
YEAR BUILT  1985  
INT SF / EXT SF  13,376 / 14,868  
ADDRESS  1780 Research Parkway, North Logan UT 84341  
USU BUILDING NO.  173C  
BUILDING ABBR.  IC1780

1787. Innovation Campus 1787 (RP1)

OWNER  Woodbury  
TENANT  Intech  
YEAR BUILT  1988  
INT SF / EXT SF  8,992 / 15,254  
ADDRESS  1787 Research Parkway, North Logan UT 84341  
USU BUILDING NO.  173B  
BUILDING ABBR.  IC1787

750. Inovar (under construction)

OWNER  Woodbury  
TENANT  Inovar  
YEAR BUILT  2018  
EXT SF  122,295  
ADDRESS  750 E 1600 N, North Logan UT 84341  
USU BUILDING NO.  177B  
BUILDING ABBR.  IC750

745. Dominion Energy Gas Facility

OWNER  Dominion Energy  
TENANT  Dominion Energy  
YEAR BUILT  2017  
EXT SF  Unknown  
ADDRESS  745 E 1600 N, North Logan UT 84341  
USU BUILDING NO.  N/A  
BUILDING ABBR.  N/A

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110G. MPL-Clinical Vets

OWNER
USU
TENANT
USU Facilities
YEAR BUILT
1967
INT SF / EXT SF
1,180 / 1,310
ADDRESS
1425 N 800 East, Logan UT 84322
USU BUILDING NO.
110G
BUILDING ABBR.
MPCLVT

410. Innovation Campus Pumphouse

OWNER
USU
TENANT
USU Facilities
YEAR BUILT
2002
INT SF / EXT SF
231 / 297
ADDRESS
410 Research Parkway, Logan UT 84322
USU BUILDING NO.
173H
BUILDING ABBR.
ICPUMP

ICSH. Innovation Campus Spring House

OWNER
USU
TENANT
USU
YEAR BUILT
Unknown
EXT SF
Unknown
ADDRESS
Unknown
USU BUILDING NO.
Unknown
BUILDING ABBR.
ICSH

83D/83E. Storage

OWNER
USU
TENANT
USU Facilities
YEAR BUILT
1982/1983
EXT SF
5,900 / 3,200
ADDRESS
1475 N 800 E, Logan UT 84322
USU BUILDING NO.
Unknown
BUILDING ABBR.
PLEQSR/PLMACH

Innovation Campus Spring House looking east
Innovation Campus Spring House looking northeast
Building 110G looking west
Building 410 looking north
Building 83D (top) & 83E (bottom) looking northeast
The Utah State University (USU) Innovation Campus is comprised of roughly 160 acres of land adjacent to the USU Logan Campus. The development on the campus is primarily academic and research facilities. The purpose of the Vehicular Transportation analysis is to document the existing conditions including transit, active transportation and vehicular facilities.

ROADWAY TYPOLOGIES

The Innovation Campus is located north of the USU Logan campus. The roads that border the campus are 1800 North, 1200 East, 1400 North and 400 East. While there are no east-west through roadways dividing the campus, there are two through north-south roadways; 600 East and 800 East. The following section provides an overview of the roadways within and adjacent to the study area, as well Main Street, which is a major arterial in Cache Valley, four blocks west of the study area.

1800 NORTH

The Campus is bordered on the north side by 1800 North. Throughout the study area 1800 North is a 50 mph, two-lane road with curb and gutter. There is a nine-foot shoulder and five-foot sidewalks on both sides of the roadway. Figure 1 is a rendering of the cross section of 1800 North within the study area.

1200 EAST

1200 East borders the Innovation Campus on the east. It is a 30 mph, two-lane road without a center turn lane. There are curb and gutters on both sides of the road. There is a sidewalk on the east side of the road that is five feet wide, and informal paths on the west side of the road.

1400 NORTH

The southern border of Innovation Campus is 1400 North. From 1200 East to 800 East, 1400 North is a three-lane road with one lane in each direction and a center turn lane. West of 800 East, 1400 North is a 45 mph, five-lane road with two lanes in each direction and a center turn lane. There is a five-foot wide sidewalk on the south side of road, whereas the north side of the road has inconsistent sidewalks that appear adjacent to developments. Figure 2 below is an illustration of 1400 North, west of 800 East.

400 EAST

400 East makes up a small portion of the western border of the Innovation Campus. It is a 30 mph, two-lane road. The section of the road that is adjacent to the campus has nine-foot shoulders, five-foot sidewalks, and curb and gutter on both sides of the street.

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mhtn architects

Figure 1: 1800 North Roadway, Existing Conditions

Figure 2: 1400 North Roadway, Existing Conditions
TRAFFIC ANALYSIS: VEHICULAR TRANSPORTATION (continued)

600 EAST

600 East serves as a local access road for the Innovation Campus. It is a 30 mph, two-lane road, with one lane in each direction. In the sections of the roadway that are within the Campus, there are five-foot wide sidewalks and curb and gutter. However, in the sections of the roadway that are not within the campus boundary there is a lack of sidewalks and curb and gutter. Figure 4 illustrates the lack of a sidewalk on a portion of 600 East.

MAIN STREET

While Main Street is not within the Innovation Campus study boundary, it is a major arterial four blocks west of the study area, and carries high volumes of east-west traffic. The section of Main Street contiguous to the study area is a 55 mph, five-lane road with two lanes in each direction, a center turn median, and six-foot shoulders. There are curb and gutter present, and five-foot wide sidewalks can be found intermittently along the roadway.

AVERAGE ANNUAL DAILY TRAFFIC

The Utah Department of Transportation (UDOT) reports the Annual Average Daily Traffic (AADT) for significant roadways throughout Utah. The 2015 AADT for the various roads throughout the study area are visualized in Figure 5.

CONCLUSIONS

Based on growth of Average Annual Daily Traffic from 2010 to 2015, 1800 North, 600 East, 800 East and 1200 East are currently under capacity, and have experienced relatively static growth over the past 5 years. These roads will be able to support future demand. 1400 North, west of 800 East, while still currently under capacity, has volumes that are trending upwards at a greater rate than other roads in the study area (see Figure 6). It is possible that mitigation measures will be required on this section of roadway in the near future in order to maintain current volume trends. Main Street is currently experiencing volumes that exceed the built capacity.
TRAFFIC ANALYSIS: EXISTING PARKING

A total of 1,372 parking stalls are provided on the Innovation Campus spread across 14 surface parking lots. There are currently no parking fees or permitting programs. Figure 7 demonstrates the parking demand observed at the USU Innovation Campus on April 25, 2017 from 8AM to 6PM. Overall parking demand peaks in the morning. Data demonstrates a demand of 733 vehicles at 8AM. This is 53% of the total parking capacity of the Innovation Campus. However, nearly half of this demand is focused in parking areas that serve the Convergys building. If these lots are not included in the analysis, the peak parking demand occurs at 10AM, where approximately 483 stalls are utilized. This is 50% of the existing parking capacity. A 10AM peak parking demand is more similar to a typical research or office park.

While the data indicates that are plenty of available parking stalls even during peak hours, utilization varies from lot to lot. The figure at right highlights peak hour utilization at each lot.

Figure 7: Innovation Campus Parking Demand

*Parking capacity is calculated as 85% of available stalls

Figure 8: Parking Utilization by Lot at 10 AM
Traffic Analysis: Parking (continued)

Demand also differs based on time of day. Certain lots have higher utilization during different times of the day, while others have lower demand. Figure 9 highlights these differences. While at certain times demand may be approaching or close to capacity at specific lots, overall parking at the Innovation Campus is well below the existing supply.

For office and research land uses, parking demand is typically conveyed as the peak utilization per square footage or number of employees. Based on the data, the peak parking demand at the Innovation Campus per thousand square feet is between 1.37 and 1.94, depending on whether the land use is focused on biological research with large lab spaces or related to software and computer technology. These higher rates may be a function of higher employee densities. Office uses, and research related to software and computer technology tend to have higher densities than uses that are more focused on biological research with large lab spaces.

Employee data is still being compiled. When this data is available, the peak parking demand per employee will also be calculated.

Like Stanford, where rates are closer to 3.3 stalls per thousand square feet. These higher rates may be a function of higher employee densities.

Office uses and research related to software and computer technology tend to have higher densities than uses that are more focused on biological research with large lab spaces. In cases and research districts, and research parks.

Demand is well below the existing supply. However, interviews with CVTD suggest that in 2014 there were 6,240 boardings and 4,160 alightings in 2014. Some of this ridership is associated with the CVTD Short Range Transit Plan on October 5, 2014.

CVTD service to the Innovation Campus is provided by the Aggie Shuttle routes. CVTD Route 2 provides service to the Intermodal Transit Center at the University of Utah Transit Center (UTTC). CVTD Route 2 also provides service to the University of Utah Biomedical Research Park and InTech Collegiate High School located at 1850 N. North Logan Blvd.

Figure 10: Parking Lot Utilization Map

Location | Capacity | 8:00 AM | 10:00 AM | 12:00 PM | 2:00 PM | 4:00 PM | 6:00 PM |
---|---|---|---|---|---|---|---|
1 | 13 | 8% | 31% | 46% | 15% | 8% | 0% |
2 | 13 | 38% | 72% | 62% | 77% | 46% | 15% |
3 | 28 | 29% | 36% | 29% | 25% | 21% | 18% |
4 | 107 | 21% | 33% | 36% | 40% | 35% | 7% |
5 | 26 | 15% | 23% | 38% | 23% | 27% | 4% |
6a | 93 | 41% | 68% | 58% | 69% | 75% | 16% |
6b | 16 | 50% | 74% | 50% | 69% | 69% | 6% |
6c | 41 | 34% | 49% | 41% | 41% | 39% | 10% |
7 | 71 | 66% | 92% | 65% | 83% | 73% | 11% |
8 | 17 | 47% | 82% | 71% | 88% | 82% | 18% |
9 | 117 | 15% | 6% | 8% | 5% | 5% | 0% |
10a | 66 | 64% | 85% | 68% | 71% | 80% | 6% |
10b | 113 | 71% | 78% | 67% | 75% | 57% | 10% |
11 | 47 | 45% | 49% | 53% | 62% | 45% | 19% |
12 | 96 | 11% | 10% | 11% | 14% | 8% | 3% |
13 | 27 | 27% | 34% | 30% | 38% | 31% | 30% |
14a | 267 | 87% | 14% | 10% | 13% | 8% | 3% |
14b | 137 | 93% | 95% | 94% | 77% | 42% | 26% |

Parking Lot Utilization Percentages by Hour

Conclusions

Overall, peak parking demand is well under the existing capacity. However, certain lots are approaching or at capacity when analyzed individually. The peak parking demand per thousand square feet is much lower than the average peak parking rate of 2.84 cited in the Institute of Transportation Engineer’s (ITE) Parking Generation 4th Edition book for office parks.
The Innovation Campus is served by Cache Valley Transit District (CVTD) Route 2 and the Innovation Campus Express Aggie Shuttle route. CVTD Route 2 provides service to the Intermodal Transit Center and operates every thirty minutes Monday through Friday between 6:00AM and 8:30PM. There are currently five CVTD stops within the study area boundary, three of which serve the existing cluster of development on 1800 North, Research Park Way, and 600 East. Boarding and alighting counts conducted for the CVTD Short Range Transit Plan on October 5th and 6th, 2016 show no activity at these stops (see figure at right). However, interviews with CVTD suggest that in 2014 there were 6,240 boardings and 4,160 alightings in 2014. Some of this ridership is associated with the InTech Collegiate High School located at the corner of 1800 North and Research Park Way.

The Innovation Campus Express Aggie Shuttle provides service every fifteen minutes between the USU Main Campus and the Innovation Campus Monday through Friday between 7AM and 5:30PM. However, this service is not provided during summer months. There are three stops within the study area boundary, two of which serve the existing cluster of development on 1850 North and 1600 North. There are approximately 136 average riders per day at these two stops.

Overall, while transit connects the Innovation Campus to both the Main USU Campus and with downtown Logan, transit demand is limited. Interviews suggest that this is, at least in part, due to abundant free parking at both origins and destinations and a limited need for connections between the Main Campus and the Innovation Campus.

CONCLUSIONS
The transit options to and from the Innovation campus provide sufficient coverage and headway. Currently both the Aggie Shuttle and the CVTD Innovation Campus route are underutilized and could support increased demand.
Active transportation, which includes bicycling and walking, is supported on the USU Innovation Campus through sidewalks, multi-use paths and on-road bicycling facilities. The figure at right demonstrates the built and planned active transportation network on and surrounding the Innovation Campus.

Both of the multi-use pathways referenced in the figure at right have yet to be constructed, but are slated to be built in the future. The bicycle facilities referenced in the figure currently exist. The facility referenced on 1800 North is an on-street, shoulder bikeway with occasional sharrow markings. The shoulder widths on 1800 North vary, depending on the location, but are generally between four and eight feet wide. The facility referenced on 1400 North (from Main Street to 800 East) is a conventional five-foot bike lane, the facility referenced on 1200 East is an on-street, shoulder bikeway, with shoulder widths of roughly eight feet. The existing sidewalks shown in the figure are five feet wide.

CONCLUSIONS/RECOMMENDATIONS

Active transportation facilities on the Innovation Campus include sidewalks and bicycle lanes. They could increase usage if they were more strongly interconnected within the campus, and if connections with the greater campus network and the city were strengthened.

Sections of the Innovation Campus are without sidewalks, which creates barriers to walking. As opportunities arise, sidewalks a minimum of seven feet wide (USU standard) should be constructed to encourage safe walking throughout the campus.

The existing bike lane on 1400 North is considered a high stress facility based on the traffic volumes and road configuration. To foster higher usage of this facility, it is recommended that it be modified to a buffered or separated bike lane.

The bicycle facilities on 1800 North and 1200 East are sufficient based on the current traffic volumes. However, higher usage could be realized if the facilities were improved to delineated bicycle lanes.

Note: The map on the facing page indicates potential multi-use pathways constructed adjacent to the two existing canals. Construction of the trails would require purchasing easements from the property owners.

The northeast canal is outside the Innovation Campus west boundary and the private property west of the canal is landscaped to the canal edge. A trail in this location would require purchase of an easement from the west property owner and modification of the existing landscaping. Two alternatives include: 1) placing the trail on the east side of the canal, in the IC parking lots that exist in that area, or 2) using 1800 North and 400 East for the multi-use pathway.
LANDSCAPE

GREEN SPACES
A variety of open spaces grace the existing Innovation Campus. A beautiful lake, the original campus water feature, sits at the core of the original campus development. The lake provides a respite for many of the employees and visitors to the campus. The lake is surrounded by a nearly two-acre lawn panel planted with large shade canopy trees.

Another set of green spaces feeds into the existing lake and becomes the center of Grand Avenue. Grand Avenue features a runnel that runs east to west through the site and is designed as an urban style water feature with surrounding seating areas, pedestrian cross overs and colorful plantings. The runnel sits between two one-way roadways that form Grand Avenue. The west end of Grand Avenue transitions to a formal space surrounded by lawn and symmetrically planted trees, with the runnel in the center.

The Agricultural Experimental Farm, the oldest in the Rocky Mountain West, provides a large open green space on the north side of the site between 600 East and 800 East Streets. Street trees line the roadways and are planted in a symmetrical fashion. Many of the buildings have a generous setback from the road. This setback allows for lawn panels under and behind the roadway shade trees. Evergreen and colorful deciduous shrub plantings accentuate building entries and entry-places.

The existing canals are an excellent addition to the campus and will provide for trail connections between both Logan and North Logan Cities and beyond. The trails will connect with the campus sidewalks and become an amenity for campus employees, students and the public.

At present, two canals traverse the site. The lower canal is a twin canal which, in general, runs north and south and forms the north-western edge of the site. The second canal also runs north-south and is the Highline pressure line canal. This canal also runs from south to north and serves as a storm water collection system for both Logan and North Logan Cities.

A small pond fed by what appears to be a natural spring is located immediately east of the upper canal just south of the bridge crossing. This pond location could be enlarged to create another significant water feature on the site.
EXISTING UTILITIES

The plan at right illustrates the existing locations of all utilities on the Innovation Campus.

See Section 04 District Plan for individual plans of each utility, with existing and proposed future locations.
ROLE & VISION OF THE INNOVATION CAMPUS

DEFINING THE FUTURE

One of the initial activities of the planning process was an interactive session in which the Steering Committee explored and defined their vision for the Innovation Campus.

The outcome defined two aspects of the campus:

- the role of the campus as an entity related to the University and the surrounding community
- the vision for the future campus and how it will grow and develop, shown on the following pages

INNOVATION CAMPUS ROLE

The role of the Innovation Campus is fourfold:

1) Research Application
   - focuses basic and applied research to benefit society
   - provides an opportunity for USU to collaborate with private business to generate ideas, patents and technology transfer (commercialization) for application to society
   - acts as a highly desirable incubator for small start-up companies as research on campus continues to grow

2) Economic Driver
   - collaborates with existing research teams for economic development
   - creates a variety of jobs for students - full-time, part-time and internship experience
   - reinvests income back into the campus to grow USU’s educational mission
   - brings people, ideas and industry together

3) Academic Reinforcement
   - provides access to better education
   - helps fulfill the educational mission of USU
   - capitalizes on the unique offerings and programs of Utah State University

4) Technology Transfer
   - gives students excellent hands-on work experience in technical areas
   - develops the infrastructure for technology development and transfer
   - transfers technology into the private sector, benefiting the community, private enterprise and the University
   - generates a one-way stream of intellectual property from the University into the community and world

Innovation Campus, Full Build-Out 3D Image
PLANS THOUGHTFULLY

- Implements guidelines and standards that encourage high-quality development.
- Provides a planning construct that attracts development and growth.
- Encourages an appropriate mix of commercial and retail tenants to serve the needs of the innovation and research organizations and their employees, such as a hotel, a convention center, dining establishments, shopping and delivery services, etc.

LOOKS TO THE FUTURE

- Organizes itself using details of highly desirable amenities sought by research and technology entrepreneurs.
- Continues streetscapes that tie the Campus together using Grand Avenue as a blueprint for future growth.
- Plans “Complete Streets” for pedestrians, bicyclists, automobiles and public transit.
- Inspires state of the art new facilities and site amenities.
- Vibrantly supports interaction with human scaled landscaping.

CREATES CONNECTIONS

- Allows food trucks and off site vendors to participate in serving the tenants’ needs.
- Encourages desirable amenities such as outdoor eating areas, trails, walking paths and fitness stations to help attract and retain new technology companies.
- Maintains an open and unrestrained ambiance.
- Has sufficient flexibility in its master plan to allow for alternate uses of existing facilities and land areas such as the current EVR facilities.

PROMOTES SUSTAINABILITY

- Identifies appropriate locations for solar panels to act as an energy source for campus buildings.
- Encourages tenants to implement sustainable initiatives in their own buildings.
- Sets a standard of LEED Silver for all new campus buildings, consistent with the standards on the main campus.
- Uses prevailing and readily available technologies to be energy efficient.
- Reduces the overall carbon footprint of the campus.
- Considers a central plant for specific building types on the campus best suited for such energy delivery.
- Follows the State’s High Performance Building Guidelines.

PROVIDES ACCESS

- Has sufficient parking in appropriate interior (off roadway) locations.
- Considers parking garages to allow greater campus density over time.
- Maintains a relationship between the buildings and pathways like Grand Avenue throughout campus, unburdened by roadside parking.
- Develops opportunities for multi-modal transportation options.

VISION: THE INNOVATION CAMPUS...

- Has sufficient parking in appropriate interior (off roadway) locations.
- Considers parking garages to allow greater campus density over time.
- Maintains a relationship between the buildings and pathways like Grand Avenue throughout campus, unburdened by roadside parking.
- Develops opportunities for multi-modal transportation options.
INNOVATION CAMPUS NEEDS: POPULATION GROWTH

Demographic data and growth projections indicate that Utah, Cache County, and Logan and North Logan cities will experience a high rate of growth over the next 25 to 40 years. A high growth rate is likely to result in pressure for increased development in these areas and also on the Innovation Campus. To meet future needs, the IC should be planned with options for greater density in the central and east districts where new facilities will be built.

Chart 1 below documents the high rate of growth that has occurred in Utah's population since 1990. While the US population has grown 31% over the past 27 years, the rate in Utah for the same period has been just under 80%. The Cache County growth rate, at 60%, was twice that of the national average. Projections indicate Utah's future growth rate to be twice that of the national average, with Cache County's growth substantially higher than the rest of the state (106% as opposed to 70%).

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<tr>
<td>Both Cities</td>
<td>56,443</td>
<td>93,366</td>
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Chart 1: Population Projections - Utah Counties
Source: Governor's Office of Planning & Budget 2012 Baseline Projections

The rate of population growth for Logan and North Logan cities is projected to high as well, as seen in the chart at left.

INNOVATION CAMPUS NEEDS: UNIVERSITY GROWTH

The total enrollment increase on the USU Logan campus over the past ten years is illustrated in Chart 3 below. The rate has varied on a yearly basis from 0 to 7%. The overall increase for the ten-year period is 3,478 students and 24%.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Enrollment Increase &amp; Growth Rate from 2006-2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2007</td>
<td>449</td>
</tr>
<tr>
<td>2007-2008</td>
<td>206</td>
</tr>
<tr>
<td>2008-2009</td>
<td>513</td>
</tr>
<tr>
<td>2009-2010</td>
<td>860</td>
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<tr>
<td>2010-2011</td>
<td>385</td>
</tr>
<tr>
<td>2011-2012</td>
<td>152</td>
</tr>
<tr>
<td>2012-2013</td>
<td>-598</td>
</tr>
<tr>
<td>2013-2014</td>
<td>367</td>
</tr>
<tr>
<td>2014-2015</td>
<td>1,123</td>
</tr>
<tr>
<td>2015-2016</td>
<td>21</td>
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<table>
<thead>
<tr>
<th>Year</th>
<th>Rate of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2007</td>
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<td>-4%</td>
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<tr>
<td>2014-2015</td>
<td>0%</td>
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<tr>
<td>2015-2016</td>
<td>7%</td>
</tr>
</tbody>
</table>

Chart 3: Total Enrollment - USU Logan Campus, Fall 2006 to Fall 2016
Source: USU website

Based on past growth and the population projections for the area, it is anticipated that USU Logan campus enrollment will continue to increase, reinforcing the justification for greater density in future Innovation Campus development.

<table>
<thead>
<tr>
<th>Area</th>
<th>Population Increase &amp; Growth Rate from 2010-2040</th>
<th>Projected Population Increase &amp; Growth Rate from 2010-2050</th>
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<td>North Logan City</td>
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<tr>
<td>Both Cities</td>
<td>56,443</td>
<td>129,882</td>
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Chart 2: Population Projections - Utah Cities
Source: Governor's Office of Planning & Budget 2012 Baseline Projections

The total enrollment increase on the USU Logan campus over the past ten years is illustrated in Chart 3 below. The rate has varied on a yearly basis from 0 to 7%. The overall increase for the ten-year period is 3,478 students and 24%.

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<tr>
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<td>2%</td>
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<tr>
<td>2011-2012</td>
<td>-4%</td>
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<tr>
<td>2012-2013</td>
<td>2%</td>
</tr>
<tr>
<td>2013-2014</td>
<td>7%</td>
</tr>
<tr>
<td>2014-2015</td>
<td>0%</td>
</tr>
<tr>
<td>2015-2016</td>
<td>7%</td>
</tr>
</tbody>
</table>

Chart 3: Total Enrollment - USU Logan Campus, Fall 2006 to Fall 2016
Source: USU website

Based on past growth and the population projections for the area, it is anticipated that USU Logan campus enrollment will continue to increase, reinforcing the justification for greater density in future Innovation Campus development.
Demographic data and growth projections show that the cities, county and region of the Innovation Campus will likely experience a high rate of growth with resulting pressure for continued development. The campus should be planned for increased density to accommodate the growth. Additional needs for the campus include the following:

**UTILITIES & INFRASTRUCTURE**
- A central plant should be considered for the Central District. Facilities in that vicinity must be planned with the possibility to connect to a central plant.
- Buildings that use culinary water for exterior irrigation should be converted to use of secondary water.

**BUILDINGS**
- Building quantity and size must be planned to achieve increased campus density in the future.

**PARKING**
- Future phases must include some amount of structured parking to help the campus achieve increased density. Incorporating structured parking will also help to preserve open space as the campus becomes more developed.

**TRANSPORTATION & ACCESS**
- Bicycle and pedestrian paths must be more strongly interconnected on the campus, and better connected with surrounding areas and city pathways.
- Minimum 7-foot-wide sidewalks should be added to all areas of the campus that do not have sidewalks.
- Existing bicycle lanes and sidewalks should be extended along 800 East.
- The existing bike lane on 1400 North should be modified to a buffered or separated bike lane.
- The bicycle facilities on 1800 North and 1200 East should be considered for improvement to delineated bicycle lanes.

**OPEN SPACE/LANDSCAPING**
- Increased future density must be balanced with landscaping and open space that maintain the established aesthetic of the initial West District.
- The USU cross country team course should be integrated into the plan as a multiuse recreational trail, recognizing its value as a popular public walking/running path.
- A landscaped buffer zone must be planned adjacent to existing residential neighborhoods that abut the campus.
University technology/research campuses exhibit the following planning trends:

- locations with transit and freeway access
- campus designs with naturalistic/park-like settings
- sustainability and resiliency on display, with use of recycled materials, and solar and/or wind-generated power
- high-visibility, feature buildings that offer a service function such as an auditorium
- an amenity-rich site
- branding/imaging as important elements
- designs and service offerings that encourage healthy living/healthy eating
- a focus on enhanced experiences

The following pages present information regarding three research/technology campuses, as comparative precedents for the USU Innovation Campus.

**Wichita State Innovation Campus**

**Wichita State University**

- **Opening:** January 2017
- **Campus Size:** 120 acres
- **Location:** Adjacent to WSU main campus, on WSU former golf course
- **Focus:** Research, learning opportunities & innovation among community members, businesses, faculty & students, in a development that will provide living, lodging, retail & entertainment options

**Current/Prospective Academic Areas:**

- engineering
- law enforcement/criminal justice
- WSU School of Business

**Current/Prospective Private Partnerships:**

- Airbus
- Dassault Systems
- Hexagon Manufacturing Intelligence
- NetApp
- the Boston Consulting Group
- Koch Global Trading Center

**Current & Future Amenities:**

- retail & restaurant offerings
- recreation & fitness center
- food truck plaza
- pedestrian mall connecting campus buildings & campus housing

**Development Strategy:** Most buildings financed, managed, leased by private developers, with eventual ownership by WSU
Nebraska Innovation Campus

University of Nebraska-Lincoln

Opening: August 2014

Campus Size: 250 acres

Location: Adjacent to UNL City Campus, on former state fair grounds

Areas of Focus:
- food science & technology
- agricultural biotechnology
- water (quality & quantity)
- renewable energy (biofuels, wind, smart grid, photovoltaics)

Partnerships: Robert B. Daugherty Charitable Foundation; a $50 million gift for establishment of the global Water for Food Institute which fosters collaboration with other institutions to address the impacts of the lack of water on worldwide food production
NCSU CENTENNIAL CAMPUS
North Carolina State University
Opening: 1989 (first building)
Campus Size: 1,314 acres
Location: Raleigh, within 1 mile of NC State main campus
Focus: Programmatic connections to NC State (collaborative research with faculty or student internships/p.t. employment opportunities)

Business Partnerships:
• 33%: Start-ups or early stage companies (Technology Incubator)
• 20%: Research & development units of large corporations
• Balance: Small businesses, state & federal agencies, & non-profits

Academic Partners:
• NC State colleges & departments: Textiles; Engineering; Education; Veterinary Medicine; Graduate School; Engineering Golden LEAF Biomanufacturing Training & Education Center (BTEC); Mechanical, Biomedical & Aerospace Engineering
• 600-student public magnet middle school

 Campus Amenities:
• public greenways
• lake & fishing pier
• game fields
• 18-hole golf course
• 9-hole disk golf course
• residential complex
• NCSU main library

CENTENNIAL CAMPUS PRECINCT
The Precinct Plans are understood to be the master plan of centennial campus. The drawings give form to the project highlighted in the NCSU Centennial Precinct Plan.

KEY PROJECTS
1. Engineering Lobby & The Oasis
2. Robert St. fantastic field
3. Tennis Center
4. Science Innovation Center
5. Building Center
6. Student Center
7. Centennial Center
8. Student Union
9. North Complex Resident
In addition to adhering to the concepts of the 2004 Master Plan, the District Plan embodies the following planning principles, which were developed by the project team during the planning process.

**ONE-CAMPUS VISION**
- Implement a unified and consistent campus aesthetic and character, with attractive landscaping
- Integrate campus transit, vehicular, bicycle and pedestrian transportation systems
- Integrate major campus systems: water recharge and reuse; land use; open space; architecture; transportation; and energy provision

**SIGNAGE & IDENTIFICATION**
- Strengthen existing and create additional entry gateways, with appropriate signage
- Use clear and consistent campus signage and building identification

**PEDESTRIAN PATHWAYS**
- Interconnect the campus with a continuous, high quality sidewalk environment and infrastructure
- Encourage pedestrian activity by creating a high quality public realm, with buildings adjacent to street frontage and exterior amenities for campus community use

**STREETS**
- Incorporate Complete Streets concepts
- Extend Grand Avenue where appropriate

**SUSTAINABILITY**
- Incorporate sustainable planning principles, with an emphasis on wise water use and reducing carbon footprint
- Propose building locations that allow favorable solar orientation

**ZONING**
- Support a retail zone along 1400 North
- Respect neighboring residential communities with quiet buffer zones at residential boundaries
- Strengthen connections to main campus

**PHASING**
- Outline phased, flexible building growth from west to east
- Plan for higher density in future phases

**UTILITIES & INFRASTRUCTURE**
- Incorporate well-defined utility corridors
- Design storm water channels and holding areas to be amenities, to overlap with other pathways, and to be visible expressions of sustainable storm water solutions
The District Plan developed through an iterative process:

- Five initial planning concepts were based on extensive input from background materials, the Steering Committee vision session and stakeholder focus group meetings.
- The Steering Committee selected a preferred direction and gave input on desired modifications.
- An updated concept was reviewed by the Steering Committee with suggestions for further refinements.
- The resulting refined concept was reviewed by the Steering Committee for presentation at a town hall meeting.
- Input from the town hall meeting was reviewed at a subsequent Steering Committee meeting and led to final modifications to the plan.

Recommendations for implementation of the plan over three phases were reviewed and finalized with Steering Committee input.

**District Plan Features**

The District Plan creates a unified campus aesthetic by continuing the theme and character of the original West District into the Central and East Districts. Features and characteristics that are incorporated throughout the plan include:

1. enhanced and new campus gateways
2. pathways and Complete Street designs that reinforce walkability and encourage active transportation
3. outdoor plazas and open green space
4. a sustainable, progressive approach to storm water management that will create campus amenities and visual focal points
5. graceful extensions of existing streets and establishment of new streets that connect well with surroundings
6. incorporation of retail uses where appropriate
7. east-west building footprints for positive solar orientation
8. clustered building development to mitigate the impacts of cold winter winds
9. building locations/footprints that avoid crossing the Logan/North Logan city boundary
10. taller buildings and higher density in the Central District and lower buildings density in the East District
11. a buffer zone at the northeast residential boundaries to avoid light and sound trespass to residential neighbors
12. structured parking in the Central and East Districts that allow increased density while supporting the preservation of campus open space

Note: Enlarged plans of the three innovation Campus districts, with specific District Plan features noted, are on the following pages.
INNOVATION CAMPUS: WEST DISTRICT

The West District is the most developed area of the Innovation Campus. Needed additions or enhancements are relatively minor.

The West District has an identifiable character and aesthetic that will establish the theme for future development in the Central and East Districts.

WEST DISTRICT SPECIFIC FEATURES

The West District plan incorporates the following features, marked on the enlarged plan (facing page):

1. enhanced/free campus gateways
2. canal paths that will facilitate active transportation to and/or through the campus
INNOVATION CAMPUS: CENTRAL DISTRICT

SPECIFIC FEATURES

1. enhanced and new campus gateways
2. (not shown - West and East Districts only)
3. establishment of 700 East Street
4. lab/institutional buildings designed for potential future connection to central plant system
5. potential future solar array at Pond/Detention location
6. a roundabout and campus gateway at the intersection of Grand Avenue and 800 East
7. outdoor places that complement campus open green space
8. incorporation of retail uses, including a hotel, along 1400 North
9. structured parking in the Central and East Districts that allow increased density while supporting the preservation of campus open space
10. clustered building development to mitigate the impacts of cold winter winds.
INNOVATION CAMPUS: EAST DISTRICT

SPECIFIC FEATURES

1. enhanced and new campus gateways
2. canal paths that will facilitate active transportation to and/or through the campus
3. (not shown - Central District only)
4. (not shown - Central District only)
5. (not shown - Central District only)
6. a roundabout and campus gateway at the intersection of Grand Avenue and 800 East
7. outdoor plazas that complement campus open green space
8. incorporation of retail uses along 1400 North
9. structured parking in the Centred and East Districts that allow increased density while supporting the preservation of campus open space
10. clustered building development to mitigate the impacts of cold winter winds
11. a multiuse recreational path to benefit community residents and the University cross-county program
12. a designated open space for recreational use
13. a graceful extension of Grande Avenue
14. a buffer zone at the northeast residential boundaries, to avoid light and sound trespass to residential neighbors
15. a canal crossing which is perpendicular to the canal
16. a clear and unencumbered pathway for the possible southward extension of 1000 East

Innovation Campus: East District
DISTRICT PLAN ZONES

Five zones have been designated in the Innovation Campus District Plan:

Existing & Planned Development

This zone consists of the original development area in the West District, and development that has occurred in the Central District to date.

Lab & Institutional-Focused Development

This zone consists of areas within the Central District that are adjacent to existing lab and institutional buildings, and are suitable to further development of these uses. These tend to be taller, larger buildings that are well placed in the Central District, away from residential neighborhoods. New and existing buildings with these functions are suitable to be connected to a potential future central plant which would be located in the center of the Central District.

Retail Development

This zone is located on the south edge of the Innovation Campus, along 1400 North. 1400 North already has a substantial retail presence, and continuing this use to the west is logical. A possible hotel or convention center has been discussed for the corner of 1400 North and 800 East.

There is a potential to locate minor amounts of retail space throughout the campus. This should be retail development that serves the campus community, such as food or copy/ print outlets. The plaza that is located on the north boundary of the Central District is a potential location for food trucks.

Open Space

Preserving open space on the Innovation Campus is a priority. Several locations are designated to preserve open space for the enjoyment of Innovation Campus users. The pathway along Grand Avenue is a significant investment in available open space. Two larger parcels are planned for the East District, one of which is designated for recreational uses and doubles as a buffer zone between the campus and neighboring residential areas.

Private and/or Institutional Development

This zone consists of campus areas that are available for private or institutional development. The majority of this use is in the East District, with a small pocket in the West District.
DISTRICT PLAN UTILITY CORRIDORS

The recommended locations for the Innovation Campus utility corridors are shown in the plan at right. The principles used in planning the corridors are as follows:

- retain existing corridor locations to the extent possible
- new corridors are to be a continuation of existing locations to the extent possible
- create the possibility of utility redundancy where possible by creating utility loops
- locate utilities underneath streets and rights-of-way to the extent possible, for ease of access
DISTRICT PLAN DEVELOPMENT DENSITY

Due to the anticipated high future growth rate for the Innovation Campus region, the District Plan incorporates greater density for future phases.

The existing development in the West District has a Floor Area Ratio (FAR) of .18. The Central District existing FAR jumps to .44, as a result of the taller buildings that have been built in this vicinity in recent years. The proposed density for new development in this area is .54.

At a FAR of .21, the East District is planned with slightly higher density than the original West District area. It is appropriate for this area to have a lower density than the Central District, as a lower density is more compatible with the neighboring residential areas that adjoin the East District.
## District Plan Phasing Overview

The District Plan is organized into three projected phases of implementation:

- **0 to 5 years**
- **5 to 15 years**
- **15 to 25+ years**

The phase plans anticipate that future development on the Innovation Campus will occur from west to east, which has been the past pattern.

The second phase (5 to 15 years) is indicated to have the greatest amount of development.

The estimated cost to install needed site infrastructure to complete each phase is summarized in the chart at right. The costs are inflated at 5% per year to the midpoint of each phase.

The Phasing Plans are a projection of how development may occur on the IC. They were created in part to establish an estimate of the costs and timing of future needed infrastructure. The amounts, timing and order of future Innovation Campus construction will be based on economic factors and development potential, and will vary from that shown.

Refer to the appendix for cost projection detail.

### Note:

The figures above are the estimated infrastructure development costs to complete each phase of the IC District Plan as represented in the Phasing Plans on the following pages. The Phasing Plans are a projection of how development may occur on the IC. They were created in part to establish an estimate of the costs and timing of future needed infrastructure. The amounts, timing and order of future Innovation Campus construction will be based on economic factors and development potential, and will vary from that shown.

Refer to the appendix for cost projection detail.

### Table:

<table>
<thead>
<tr>
<th>Phase</th>
<th>0-5 years</th>
<th>5-15 years</th>
<th>15-25+ years</th>
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<td></td>
<td>(2018-2023)</td>
<td>(2024-2034)</td>
<td>(2035-2045)</td>
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<td>$489,494</td>
<td>$1,077,972</td>
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<td>Roads, Extensions &amp; New</td>
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<tr>
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<td>$4,903,181</td>
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<tr>
<td>Total</td>
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<td>$5,923,928</td>
<td>$23,167,611</td>
</tr>
</tbody>
</table>

### Diagram:

[District Plan Phasing Overview Diagram]

**Note:**

The figures above are the estimated infrastructure development costs to complete each phase of the IC District Plan as represented in the Phasing Plans on the following pages. The Phasing Plans are a projection of how development may occur on the IC. They were created in part to establish an estimate of the costs and timing of future needed infrastructure. The amounts, timing and order of future Innovation Campus construction will be based on economic factors and development potential, and will vary from that shown.

Refer to the appendix for cost projection detail.
The East District is still undeveloped. It has two current uses based on 2016 Memoranda of Understanding (MOUs) between USU/IC Administration and the USU Athletics and Landscape Architecture and Environmental Planning (LAEP) departments. The uses include a cross-country tournament area and running track for Athletics, and a hands-on student learning lab for LAEP. The MOUs are in effect for a ten-year period with possible additional five-year renewal intervals (see appendix for more detail).
This phase includes several projects already being developed, as well as future anticipated buildings. Currently under construction:

- USU# 177B - Inovar
- USU# 178A - USURF

Projects designed and ready for construction:
- USU# 173E - Calibration & Optical Research Lab auditorium addition
- USURF south of 178A (no USU# yet)

Projected costs for site development and infrastructure needed to complete the phase:
$7,724,124

(includes inflation to midpoint of phase)
This phase anticipates a large number of projects. Some are in the Central District while the majority are in the west portion of the East District. It includes development of a retail hotel and conference center complex at 1400 North and 800 East, anticipated to be used for conferences and other large campus events.

Buildings in the East District will need to avoid the areas used by Athletics and LAEP until their MOUs are no longer in effect.

Projected costs for site development and infrastructure needed to complete the phase:

$10,923,938

(includes inflation to midpoint of phase)
This phase consists of the eastern portion of the East District, including retail along the east portion of 1400 North.

Buildings in the East District will need to avoid the areas used by Athletics and LAEP until their MOUs are no longer in effect.

Projected costs for site development and infrastructure needed to complete the phase: $23,267,611 (includes inflation to midpoint of phase).
TRANSPORTATION: PARKING

VEHICULAR PARKING ANALYSIS

The District Plan concept includes the addition of approximately 40 new buildings with adjacent surface parking lots and three parking structures. A conceptual level parking analysis was conducted on a preliminary concept to estimate the number of stalls it would provide and to evaluate if this parking would be sufficient to meet forecasted demand.

The square footage of each new lot was calculated by taking the total square footage of each lot and removing space that would be used access driveways. In addition, the lot square footage was reduced by approximately 39% to factor in space that would be utilized for internal drive aisles. The ULI Dimensions of Parking 5th Edition was used to estimate a ratio of parking spaces to internal drive aisle width, assuming the high end peak parking demand observed at the USU Innovation Campus. However, if the reduction in land dedicated to parking was used for additional development, parking demand estimates would also rise due to the additional square footage of office park or retail land use and therefore additional levels may need to be added to the parking structures.

Based on this analysis it is recommended that a total of 2,325 stalls be provided for the development to accommodate estimated demand. This assumes that additional call centers uses similar to the Convergy buildings are not contemplated. If this type of use is considered additional parking would be needed.

BICYCLE PARKING RECOMMENDATIONS

The road and trail infrastructure on the Innovation Campus is intended to encourage and support bicycle travel. Providing adequate bicycle parking and storage facilities as part of campus development will strengthen these efforts. At a minimum, bicycle racks should be provided in a covered exterior location in a quantity sufficient for 5% of the total anticipated number of regular building occupants. The racks must be in a high-visibility location adjacent to a primary building entry. It is recommended that future development teams consider including a secure bicycle storage room or bicycle lockers for new buildings. If bicycle storage facilities such as those are provided, exterior racks will still be needed for use by building visitors.

Table 1: Preliminary District Plan Concept parking stalls by lot

<table>
<thead>
<tr>
<th>Building/Lot</th>
<th>Estimated Parking Area (sqft)</th>
<th>Estimated Parking Stalls</th>
</tr>
</thead>
<tbody>
<tr>
<td>B02/B03 Lot</td>
<td>38,753</td>
<td>144</td>
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<tr>
<td>B04</td>
<td>8,691</td>
<td>32</td>
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<tr>
<td>Innov/B05/B06</td>
<td>94,376</td>
<td>350</td>
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<td>B07</td>
<td>10,466</td>
<td>39</td>
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<tr>
<td>B29/B30</td>
<td>43,280</td>
<td>157</td>
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<td>B31/B32/B33</td>
<td>46,742</td>
<td>173</td>
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<td>B34/B35/B36</td>
<td>31,344</td>
<td>116</td>
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Overall, this estimates that the site would be parked at approximately 2.5 stalls per thousand square feet of building space. Two additional analyses were conducted to determine if the amount of parking would be adequate based on existing parking demand observations. The first assumed a peak parking utilization of 1.94 for office park uses and 3.76 for retail uses. The second assumed a peak parking utilization of 1.37 for office park uses and 3.76 for retail uses. These represent the high and low end observations described in the existing parking analysis. In both analyses, it was assumed that additional spaces should be provided to allow for utilization rate of 85%. At this target utilization rate the parking is being efficiently used, but there are enough spaces to keep people from assuming that there is no parking available.
TRANSPORTATION: TRANSIT PLAN

TRANSIT ROUTING & STOP PLACEMENT

As the Innovation Campus expands, providing access to public transit will be critical to meet transportation demand and provide mobility choices to employees and visitors. The campus is currently served by Cache Valley Transit District (CVTD) Route 2 and the Innovation Campus Express Aggie Shuttle route. These routes should be adjusted to provide access as the campus expands. The CVTD route should shift to serve Research Parkway Drive and Grand Avenue while the Aggie Shuttle route should extend service along Grand Avenue to serve the new campus development. Where possible, stops should be shared between the two services. The plan at right provides an overview of preliminary route and stop placement concepts for both the CVTD and Aggie Shuttle routes.
TRANSPORTATION: ACTIVE TRANSPORTATION PLAN

BICYCLE AND PEDESTRIAN FACILITIES

The Active Transportation Plan considers bicycle and pedestrian pathways on the Innovation Campus (IC). The University has two goals for IC active transportation: to enhance and expand the existing path network within the campus; and to strengthen connections between on-campus pathways and adjacent networks (existing or future) planned by Logan City, Cache County and USU. The plan on the facing page shows recommended on-campus pathways, and recommended alignments with the surrounding network.

On-Campus Network

The campus East District is well served by the existing cross county trail. Expanding its designated use to include pedestrians and cyclists (outside of track meet purposes) would enlarge the internal network and benefit all active transportation users.

In the East District, the plan shows a canal path that would be a segment of a pathway extending from Logan to Smithfield, as recommended by the Cache County Trail and Active Transportation Master Plan. The canal path is envisioned as a 10’ wide, non-motorized pathway that serves as an active transportation and recreation corridor, as well as an improved service access for canal company and municipality management of the adjacent waterway and submerged canal channel. The surfacing of the trail may vary throughout the corridor based on landowner and municipality preferences, with preferred surfacing being either roadbase, asphalt or concrete. Initial outreach to property owners along the corridor indicates a preference for roadbase and crushed gravel to maintain the area’s rural character. Where the cross-country course crosses the canal path or uses it, the surfacing will need to be appropriate for the course.

Along some proposed roadways in the campus Central and West Districts, the plan recommends building a multilane path network that will connect with larger campus destinations and green spaces. These multiuse paths should allow for all active transportation modes. The loops and connections to the campus green spaces make the paths useful both for commuting as well as recreation.

The Grand Avenue extension in the East District will be an important part of the on-campus active transportation network, with facilities for both bicycles and pedestrians.

Bicycle maintenance stations are recommended at strategic locations within the campus. The stations should be highly visible, and located in areas with the highest concentration of buildings – often in a “plaza” or similar type setting. These stations should provide tools and an air pump that people can use to perform basic repairs on their bikes, which is an important first/last mile amenity.

Connections to Surrounding Pathways

Three cycling facilities planned adjacent to the IC will provide important bicycle connections between the campus and surrounding areas. They include a buffered bike lane on 1200 East, a conventional bike lane on 800 East, and a “Regional Bike Route” on 400 East. The regional route is intended to be part of a county-level bicycle path network that will connect many cities within the county. The external connections will be strengthened by alignment with comfortable bicycle/pedestrian facilities within the Innovation Campus.

Integrated Planning

The Innovation Campus District Plan seeks to make transportation recommendations that integrate with other planning efforts completed or anticipated in the area:

• Both the Logan Bicycle/Pedestrian Master Plan (2015) and the USU Transportation Plan (2016) recommend a buffered bike lane from main campus on 1200 East to 1400 North, and a conventional bike lane on 800 East from main campus to 1400 North. The
Technology-Driven Transportation Plan

**Technology-Driven Transportation Infrastructure**

Innovative technology is quickly changing the transportation industry. To position the Innovation Campus for success in the future, planning for technology-driven transportation changes is key. Already, electric vehicles (EVs) are beginning to make up a larger portion of the private vehicle fleet. Accommodating these vehicles by providing charging stations will be important in the future. Additionally, providing EV infrastructure can incentivize people to use these vehicles and provides an important employee benefit.

Technology is also rapidly changing how people travel. Transportation Network Companies (TNCs) like Uber and Lyft are one example. Users no longer have to rely on their own private vehicle for mobility and can instead use an on-demand door-to-door service that they access using their smart phone. One key issue with the growth of this service is managing curb space and identifying pick-up and drop-off locations. Without designated locations for pick-up and drop-offs, TNC vehicles often stop in the middle of travel lanes to load and unload passengers. This can create both a safety and a congestion issue. Designated pick-up and drop-off locations formalize where this interaction should occur. These locations may also be used if and when autonomous vehicles (AVs) provide similar services. The plan at right provides conceptual locations for both EV charging stations and Carpools/TNC pick-up/drop-off locations.

USU has a car share program (Car Share through Enterprise) and a ride share program (2Share), which are available to USU students, faculty and staff. The car share program may place a vehicle at the Innovation Campus in the future. The program would be supported by having one or more designated stalls in a campus surface parking lot that is easily accessed by the campus shuttle or CVTD buses.

**USU Innovation Campus | District Plan**

District Plan recommends a continuation of these facilities through the IC.

- The USU Transportation Plan references a recommendation to reconfigure the existing road cross section from two lanes to three lanes with a buffered bike lane on each side of the road.
- The Cache County Trails and Active Transportation Master Plan will recommend a regional protected or separated cycling facility along RD between 500 North and 1800 North. This will provide an important regional connection for the IC, encouraging cycling for transportation to and from the campus. The Master Plan will also recommend a canal pathway connecting Logan to Smithfield, a segment of which will pass through the IC.
- The Logan Bicycle/Pedestrian Master Plan (2015) recommends an off-street, multiuse path along the canal. It would pass southward through the IC, traverse 1400 North near 900 East using a grade-separated crossing, and head southwest onto the USU main campus. This multi-use path would create a great active transportation connection from the Innovation Campus to the University, as well as other key destinations such as Logan Canyon.

Innovation Campus Technology-Driven Transportation Plan

11.15.2017 | PAGE 4.25
TRANSPORTATION: ROADWAY RECOMMENDATIONS

ROADWAY CROSS-SECTIONS

Roadways should be designed to accommodate multi-modal transportation. Historically, bicycles and pedestrians have often been neglected in roadway design. To inform roadway design for the Innovation Campus, two cross-sections were developed.

Below is a conceptual cross-section design for 700 East. The design provides a separated multi-use pathway on one side of the roadway. This would provide a continuous multi-use pathway that bisects the campus, providing a safe and convenient pathway to the central plaza. Since it is anticipated that vehicle volumes and speeds will be low on this roadway, bike lanes are not recommended. However, on-street sharrow markings should be used in the drive lanes.

The figure below is a conceptual cross-section design for secondary roads within the campus. These roads are anticipated to have low speeds and lower vehicle volumes. Drive lanes with sharrow markings are recommended for these roads. Seven-foot-wide sidewalks are required as a USU standard. A seven-foot-width minimizes damage from snow removal and improves snow removal efficiency.

North Logan City’s plan for 800 East is five lanes (a 14-foot turn lane and four 12-foot travel lanes), with five-foot bike lanes each side and ten feet on each side for park strip and sidewalk.
CONCEPTUAL ROUNDABOUT

The intersection of Grand Avenue and 800 East is one of the most important entry intersections to the campus. One concept to make this more of a campus gateway and to slow traffic in the area is to install a single-lane roundabout. (See typical one-lane roundabout design in figure at right.)

Roundabouts can improve safety by slowing vehicle speeds and reducing the number of conflict points between automobiles and bicycles and pedestrians. This intersection treatment can be found throughout the country (see photos, facing page).

Bikes can be accommodated in roundabouts in several different ways:

Method 1: End the bike lane prior to the roundabout and provide signage that bikes can enter the roundabout, as well as signage to drivers that bikes may be present in the roundabout.

Method 2: End the bike lane, but provide ramps for cyclists to access the sidewalk. Cyclists can then use the pedestrian crossings and never enter the roundabout. They can then pick up the bike lane on the opposite side after they’ve crossed using another ramp.

Method 3: Provide a protected bike lane within the roundabout. While currently uncommon in the United States, these have been implemented in other countries like the Netherlands. The general concept is to provide a bicycle lane throughout the roundabout, accommodating bicyclists in all movements in the roundabout. The “Protected Bike Roundabout” photos on the facing page are examples of this treatment.

Given the expected low traffic volumes at Grand Avenue and 800 East, it will likely be sufficient to provide a single-lane roundabout and to use Method 1 described above to accommodate bicycles.
UTILITIES: CENTRAL PLANT ASSESSMENT

The planning team’s mechanical engineering consultant performed a preliminary assessment of a central plant system for the Innovation Campus, based on the District Plan concept.

For the above reasons, district heating is best suited to areas with high building and population density in relatively cold climates. District cooling applies in most areas that have appreciable concentrations of cooling loads such as schools, laboratories, rec centers, etc.

ADVANTAGES

1. 25% Diversity Factor: Typically the total required capacity of the plant is approximately 75% of the sum of each building’s maximum instantaneous demand.

2. Less Capital: Due to economy of scale and diversity, the central plant requires less capital than providing heating and cooling individually at each building. It has been our experience, however, that distribution systems with walkways capable of supporting golf cart support vehicles often offset the savings associated with the central plant.

3. O&M Staffing & Costs are Reduced: A central plant requires fewer, and higher trained, personnel. Optimization and continuous and accurate monitoring is practical.

4. Increased Efficiency: Central plants are typically equipped with multiple high efficient water cooled centrifugal chillers. Modern DDC control systems are able to stage chillers for optimum efficiency. For this reason, part load performance and efficiencies are substantially improved. District heating typically does not have an associated efficiency increase but opportunities for heat reclamation and recovery are greatly improved with a central plant system (see item 5 below).

5. Green Building Optimization is More Practical: Opportunities for thermal storage, Co-Gen, Heat Recovery, Wind, Solar, Ground Water Heat Rejection, Load Shedding (selective load reduction to maximize utility rates), etc., become more practical when the generation of heating, cooling, and electricity is centralized.

6. Building Utility Metering: Central plants offer the ability to meter the utilities at each building.

7. Redundancy: Central plants are typically equipped with N+1 redundancy. The loss of a single boiler or chiller typically results in no interruption. Central plants equipped with Co-Gen electricity generation also offer redundancy, typically limited to emergency power.

DISADVANTAGES

1. Thermal and hydraulic losses occur in large distribution networks.

2. Initial construction costs require large capital investment.

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Utilities: Central Plant Recommendation

Analysis shows that only seven out of 21 existing IC buildings can be converted to a central plant connection. Furthermore, a tunnel or direct buried connection between the Jake Garn, Calibration, Biomolecular, LUSTAR, and Inovar buildings would be in excess of 3,000 ft. long. A utility tunnel conforming to USU Facilities and Design Standards would cost approximately $8,000 per linear foot, and a direct buried installation would cost approximately $2,000 per linear foot (based on historical costs). The associated cost for the tunnel would be $18 million, and a direct buried connection would cost approximately $6 million.

Only the USURF building was designed with a central plant connection in mind. The remaining buildings would need to be modified to accept a central plant. The Skaggs building would require an additional 750 feet of tunnel for connection.

5-Year Recommendation:
The majority of buildings on the Innovation Campus are equipped with packaged rooftop equipment that does not lend itself well to central plant connection. The buildings currently under construction have not been designed with central plant connections in mind. In the near future, it is not feasible to connect the existing buildings to a central plant. Also, the campus lacks the proper load density to warrant a central plant.

15-Year Recommendation:
New buildings should be equipped with a hydronic heating and cooling system with strategically located mechanical rooms that will be able to connect to a central plant. Large buildings should consider oversized boilers and chillers and nearby buildings should be connected to provide added redundancy.

+15-Years Recommendation:
As the older buildings reach the end of their useful life, they should be replaced with buildings that can connect to the oversized mechanical systems. Once there is sufficient load density, a new central plant with central utility tunnels should be provided.

Advantages and disadvantages of five different central plant/utility connection systems:
**INTRODUCTION**

The Innovation Campus has many existing utilities that run through the campus area. These utilities cross the campus in many locations in a very random manner. New utilities installed in the future should be installed in a more organized fashion to aid in future utility operations and maintenance. The Utility Corridors Plan indicates utility corridors that should be used for future utilities. Some of the existing utilities are located within these corridors.

The Innovation Campus is located partially in Logan City and partially in North Logan City. These cities prefer that water and sewer services for future campus buildings be provided by the city that each served building is located within. The other utilities are operated by other entities and do not need to be separated along the city boundary line. All utilities should be designed and constructed in corridors that can be accessed for future maintenance.

The new utilities will be constructed as development occurs and have been planned for the projected three phases of future development.

**CULINARY WATER**

At this level of planning, it is necessary to make conservative assumptions about the future culinary water system. It is assumed that all future development will be served by pressure irrigation. This will eliminate outdoor water demands for the culinary system in the areas that are currently undeveloped. It is also anticipated that existing buildings that currently use culinary water for outdoor irrigation will connect to the irrigation system at some future time and reduce the culinary water demands further.

Outdoor water demands are much larger than typical indoor water demands. The typical peak water demands on these future culinary water pipes will occur in a fire flow situation. Based on the 2015 International Fire Code (IFC), a typical building constructed in this area will require 3,000 gpm of fire-flow. This is also in line with the Logan City Water Master Plan, which tabulates the fire-flow at large buildings and large water users throughout the city. Eight-inch diameter pipes will provide adequate capacity for fire flows and should be used throughout the campus. However, the projected water demands for each new building that is constructed should be evaluated to identify its impacts to the system. Some manufacturing or processing facilities can have very high water demands depending on their operations.

The Innovation Campus Culinary Water Plan shows the existing active culinary water lines based on information provided to us and the proposed culinary water lines to serve the Innovation Campus. The anticipated construction phasing will correlate closely with the overall campus phasing, although installation of the proposed culinary water lines should occur prior to other surface improvements such as roads or parking lots, in order to avoid or limit costly remove and replace situations.

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**Innovation Campus Culinary Water Plan**

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The future sanitary sewer pipes for the campus have been sized based on an estimated average daily flow of 0.082 gpd/ sq. ft for commercial office buildings as reported by Water Supply and Pollution Control (Clark, Veissman and Hammer). The flows were then peaked using a factor of four to size the future pipes. Based on this, flows were then peaked using a factor of four to size the future pipes. Based on this assumption, eight-inch pipes were selected to serve the campus.

During initial observations, it was noted that two areas in the East District proposed development area will require further analysis prior to the buildings and development occurring there. Due to the existing ground topography, the depth of the sewer line in 1400 North and the desire to not cross over municipality boundaries, buildings B25, B26, B27, B28, B36 and B37 will be difficult to provide service to through Logan City. Options that may be considered include: providing small lift stations; providing service through North Logan City; or moving the buildings into North Logan City in order to keep separation between municipalities.

The Innovation Campus Sanitary Sewer Plan shows the existing active sanitary sewer lines based on information provided to us and the proposed sanitary sewer lines to serve the Innovation Campus. The anticipated construction phasing will correlate closely with the overall campus phasing. Installation of the proposed sanitary sewer pipes should occur prior to other surface improvements, such as roads or parking lots, in order to avoid or limit costly remove and replace situations.
There are two main irrigation corridors that pass from the south to the north through the Innovation Campus that provide irrigation water to users within Logan, North Logan, Hyde Park and Smithfield Cities. The canal on the east part of the campus is the Logan and Northern Canal (L&N Canal) which is operated by the Cache Highland Water Association (CHWA). The canal on the west side of the campus is referred to as the Twin Canals.

Over the past few years, the L&N canal has been converted to pressure irrigation. A pressure pipe runs along the west bank of the canal to provide pressure irrigation water to the shareholders. The old open canal is still in place to carry storm water from Logan and North Logan.

The Twin Canals are located in one corridor and are made up of the Hyde Park Canal and the Logan North Field Canal. These two canals are combined in one channel at some locations along the corridor and separated as two channels at some spots along the corridor.

The irrigation piping on the Innovation Campus between these two canals is owned and operated by USU. USU recently completed a pressure irrigation model to size the backbone piping that is needed to serve the Innovation Campus at buildout. The required pressure irrigation piping to serve the Innovation Campus is shown in the Innovation Campus Irrigation Plan. The anticipated construction phasing will correlate closely with the overall campus phasing. However, installation of the proposed irrigation pipes should occur prior to other surface improvements, such as roads or parking lots, in order to avoid or limit costly remove and replace situations. The pipes have been sized assuming that the entire campus will be served by irrigation water for outdoor watering in the future.

Currently the outdoor area west of 600 East is either irrigated by culinary water or by an existing irrigation pump station that pumps water from the Twin Canals. In the future, USU would like to work to irrigate all of the campus using irrigation water. The area west of 600 East could all be served by the irrigation pipe from the L&N Canal by adding distribution piping. The Twin Canal pump station that serves the campus below 600 East is old and USU would like to eliminate it in the future and feed the pumped service area from the CHWA canal.
The Innovation Campus Natural Gas Plan shows the existing active gas lines and the proposed gas lines to serve the Innovation Campus. Consultation with the local gas authority should occur as development begins. The anticipated construction phasing will correlate closely with the overall campus phasing. Installation of the proposed gas lines should occur prior to other surface improvements, such as roads or parking lots, in order to avoid or limit costly remove and replace situations.

UTILITIES: NATURAL GAS

The Innovation Campus Natural Gas Plan shows the existing active gas lines and the proposed gas lines to serve the Innovation Campus. Consultation with the local gas authority should occur as development begins. The anticipated construction phasing will correlate closely with the overall campus phasing. Installation of the proposed gas lines should occur prior to other surface improvements, such as roads or parking lots, in order to avoid or limit costly remove and replace situations.
Utilities: Storm Drain

All new development on the Innovation Campus needs to meet the design requirements of the Cache Valley Storm Water Design Standards as last amended by Logan City in June 2016. These standards are based on collective input from the municipalities and the canal companies in the area and agreements that exist between the canal companies and the municipalities. Logan has officially adopted the updated 2016 standards. North Logan is currently utilizing an older version of the standards, but has expressed a desire to adopt the updates. As such, North Logan wants to utilize the 2016 standards for this district plan. A couple of the major updates to the new standards are:

1. Management of the 90th Percentile Storm On-Site. All new development or re-development must be designed to manage the storm volume generated by the 90th percentile storm on site. Logan has determined the 90th percentile storm volume. On the Innovation Campus, areas west of the Logan and Northern (L&N) canal must infiltrate, evaporate or harvest the first 0.6 inches of rainfall. This value is 0.66 inches for areas east of the L&N Canal.

2. Mandatory Low Impact Design (LID) Evaluation. Each development or re-development project must identify LID strategies to implement Best Management Practices (BMP’s) that infiltrate, evapotranspire or harvest and use storm water on site to protect water quality.

The following sections describe the assumptions and procedures followed to create a conceptual storm drain master plan for the Innovation Campus based on the 2016 Standards. A computer model was created using Info SWMM 5.4 modeling software. The model was created to estimate the pre-development runoff and the post development runoff from the service area to size conceptual regional retention/detention facilities and help estimate the size of future storm drain pipes on the campus.

Pre-Development Runoff Flow

The design standards require that all new developments and re-developments must design storm drain facilities for the 100-year 24-hour storm. Several additional initial assumptions were used to create the hydraulic model to determine the pre-development runoff flows:

1. SCS method with runoff coefficients (curve numbers) for pasture land
2. SCS Type II Storm distribution
3. Soil Types from the NRCS website, indicating most soils on site are D-Type (poor infiltration)
4. Time of concentration calculated based on HEC 22
5. Slopes were calculated based on 5-meter DEM contour data from the Automated Geo Reference center (AGRC) and compared with Google Earth elevations.

The maximum allowable discharge from any developed area is the lesser of 0.2 cfs per acre or the peak discharge from the developed area prior to development. We created the model scenario with the campus divided into smaller drainage areas (sub-catchments) to determine the pre-development runoff from the undeveloped areas (See Figure 1: Pre-Development Flows).

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Figure 1: Pre-Development Flows
The pre-development peak runoff flows are greater than 0.2 cfs per acre in all of the sub-catchments. Based on this finding, all future detention ponds in the district plan are sized based on a release rate of 0.2 cfs per contributing acre. The existing collection system for reference is shown in Figure 2: Existing Pipe System.

POST-DEVELOPMENT RUNOFF FLOW AND VOLUME
The same assumptions used to calculate the pre-development flows were used for the post development projected runoff flows with one major difference for the curve number determination. We assigned a composite curve number to each sub-catchment based on the projected development for the campus. We assumed that the campus would develop to have a similar amount of impervious area as the developed area of the Innovation Campus that is west of 600 East Street and North of Grand Avenue (See Figure 3: Storm Drain Runoff and Detention).

SIZING THE PONDS
The storm drain ponds are sized to retain the 90th percentile storm and to detain any flows above what is retained to the 0.2 cfs per acre maximum release rate (See Figure 3 – Storm Drain Runoff and Detention). Figure 3 shows the pond area and pond volume for each.
PERCOLATION RATES
Soil evaluations were completed at eight locations throughout the Innovation Campus to give an estimation of how much storm water can be infiltrated into the ground. The tests were completed to help understand if retention ponds might be feasible on the Innovation Campus. This information was also valuable in determining what kind of LID strategies can be implemented on the campus. The adjacent table summarizes the results of the percolation tests. Five of the locations included a percolation test and the other three sites included a soil and water table/piezometric water surface evaluation.

Based on the soil types identified at sites four and five, the estimated percolation rates are probably in the 20 to 30 minutes per inch range. At site six, located just east of the L&N canal, there is a hard pan at about five feet, which is preventing the passage of much water. The clays at about three feet would probably have a percolation rate of 20 to 30 minutes per inch, but at a lower depth, close to the water table and saturation, the percolation rate would decrease. Site six was clearly different than the other seven test sites.

Based on the results of the soil tests, it is probable that water from a retention pond would percolate within the required 72 hours per the design standards. The one exception may be for a pond located just east of the L&N canal. Percolation results are very site specific, and any percolation tests need to be completed for every storm drain pond that is constructed.

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### Innovation Campus Percolation Test Results

Figure 4: USU Storm Drain Full Retention shows an alternative pond area and volume sized for the scenario where the total runoff volume is retained on site.
Based on the results of the modeling analysis and the soils tests, USU should plan to retain as much storm water at each developed site as possible. This will minimize the impacts to existing storm drain piping and reduce costs that would be associated with upsizing existing pipes or constructing new pipes. The existing storm drain pipes on the Innovation Campus are currently near or over capacity.

A conceptual collection plan has been prepared to convey the detained storm water flows to the irrigation canals. Many of the existing pipes shown in Figure 2 are not large enough to convey the detained runoff flows. The required pipe locations and sizes were calculated while considering the maximum release rate of 0.2 cfs/ac per subcatchment pond. The proposed pipes were generally placed in the same locations as some existing pipes (See Figure 5: Detained Trunkline System). However, if the pond sizing is based off full-retention on site, fewer proposed pipes will be necessary.
LOW-ImpACT DesiGn (liD) STRATeGIES

In order to maintain a good storm water management program a recommended list of LID strategies or BMP’s should be compiled. 

The list for this planning document is as follows along with brief descriptions:

1. Planter Strip with Flush Curb. This would be most applicable around parking lots. This design would allow for direct runoff from parking lots into a planter strip or swale that would filter and infiltrate the storm water.

2. Planter with Check Dams. This infiltration method allows for varying levels of storage based on the check dam design.

3. Vegetated/Non-vegetated Swale. This is a basic swale design that would allow for infiltration. Swale design components may vary, such as, rock-lined bottom, perforated pipe installation below or filter sand beneath to provide required permeability rates, etc.

Depending on the site development of the Innovation Campus, other LID strategies may be implemented but they should be properly engineered and must follow the overall storm water management plan compiled in this report.
Utilities: Electrical & Telecommunications

Electrical Existing Conditions

The existing Innovation Campus electrical distribution system is fed from three sources: USU power (contact Mark Holt), Logan City Power (contact Chris Niemann), and Rocky Mountain Power (contact Jim Knight).

The USU power system exists within a small portion of the Central District primarily along 4400 North and 800 East. The USU power system is currently being reduced on the campus with little or no interest in providing power to future Innovation Campus buildings due to the demographics of the buildings. The USU 12.6 kV distribution is primarily overhead lines that feed a few small buildings and barns within the Innovation Campus.

Logan City Power provides power for the southern portion of the Innovation Campus and generally has power around or just outside the perimeter of the campus boundary. There is a 46 kV overhead transmission line that runs through the southeast corner of the campus. This transmission line feeds into the north USU substation. If buildings are desired or planned within this area of the Innovation Campus, the overhead transmission line would need to be relocated. The Logan City Power system has been inconsistent in the past with some reliability issues. At the present time, Logan City Power has approximately 2-3 MW of capacity readily available to feed power to the Innovation Campus. Although it will depend on building type and density, it is anticipated that this would be adequate to feed any buildings located within the Logan City boundary of the Innovation Campus.

Rocky Mountain Power provides power for the portion of the Innovation Campus that is located in North Logan City, which makes up the majority of the campus. The existing Rocky Mountain Power distribution system includes underground 12.6 kV distribution with switches, junctions, and cabling installed within direct buried conduit. Rocky Mountain Power has indicated that they currently have adequate capacity for additional building loads for the next 5 years or so, but depending on growth within the Innovation Campus and generally has power around or just outside the perimeter of the campus. Rocky Mountain Power has indicated that they currently have adequate capacity for additional building loads for the next 5 years or so, but depending on growth within the Innovation Campus.

Electrical System

Strengths

- There currently appears to be adequate power capacity for future projects in the innovation campus from both Rocky Mountain Power and Logan City Power
- Reduced up front initial cost to install electrical service when compared to USU owned primary distribution system

Weaknesses

- Long term costs and utility rates may be more than if fed from USU power system
- Dependability of Logan City Power Service
- Multiple utilities serving the Innovation Campus
- Large 46 kV overhead transmission line through the southeast corner of the campus

Electrical System

Proposed Electrical

Existing Electrical

Opportunities

- Possibly feed locations that are in both Logan and North Logan City from RMP by controlling location of electrical service to building
- Define power utility corridor for future projects

Threats

- Building near the 46 kV overhead transmission line
- Difficulty controlling utility corridors for power on a project by project basis

Innovation Campus Electrical Plan
UTILITIES: ELECTRICAL & TELECOMMUNICATIONS

Campus and the surrounding area may need to expand their system for additional capacity beyond 5 years.

FUTURE ELECTRICAL SYSTEM

The future projects within the Innovation Campus should be fed from either Rocky Mountain Power or Logan City Power depending on the location of the building. At full buildout, the Innovation Campus total electrical demand is estimated to be approximately 10 MW. Buildings that are located on the border and are within both Logan and North Logan City should be fed from the Rocky Mountain Power system unless this is not feasible. Projects fed from Logan City Power will be responsible for connection and impact fees, primary conduit, and all secondary conduit and wires. Currently there are additional costs of $1800/ft for 3-phase primary distribution beyond the first 150 feet. Logan City Power will provide primary cabling, transformer, and meter. Projects fed from Rocky Mountain Power will provide primary cabling, transformer, pad/vault, CT/Metering Section, and secondary conduit to the Metering Section. Rocky Mountain Power will provide primary and secondary conduit to meter section.

TELECOMM EXISTING CONDITIONS

The existing telecommunications system includes direct buried conduit ductbanks and manifold network with both fiber and copper cabling. The telecommunications system is owned and maintained by USU. Private tenants utilize the USU backbone telecommunication system back to the network node where they then transition to their telecommunication provider. The Innovation Campus has a single connection back to the USU network in the SCI building with no redundant path or backup currently in place.

TELECOMMUNICATIONS NEW

Future projects within the Innovation Campus will connect into the USU Telecomm network. Each project will be responsible to extend new 4” conduit ductbanks through designated utility corridors to their project site. Manholes and spare conduits need to be installed as required by the University to allow spare conduit for growth and changes in the system, it is strongly recommended that a redundant pathway be provided to the USU network to serve as a backup in the event that the current main telecomm lines are not available.

TELECOMMUNICATIONS SYSTEM

Strengths
- Some of the major telecomm corridors have been created; there is a fair amount of existing fiber lines currently in place
- USU owns/maintains the backbone structure giving USU control of the system

Weaknesses
- No pathway redundancy
- Single points of failure
- Some areas (primarily east side) have little or no infrastructure/pathways in place

Opportunities
- Define telecomm utility corridor in non-developed portions of Innovation Campus for future projects
- Provide redundant paths and node backup

Threats
- Difficulty controlling utility corridors for telecomm on a project-by-project basis
- Adequate funding for proper telecomm pathway infrastructure when funded by small individual projects
DESIGN STANDARDS & GUIDELINES

A UNIFIED CAMPUS AESTHETIC
One of the primary planning principles of the Innovation Campus is to develop and maintain a unified aesthetic and character for the campus. This will be accomplished through implementing design standards that guide the physical development of the campus.

This section of the District Plan contains:
1. an outline of the project development process that will support implementation of the campus design standards
2. general architectural design standards
3. general site/landscape design standards

As the District Plan was being completed, USU Facilities was formulating specific standards and guidelines for IC development. Upon finalization, these will be included in the document appendix.

INNOVATION CAMPUS ROLE
In implementing the Innovation Campus Design Standards and Guidelines, it is beneficial to keep the four-fold role of the campus in mind. New development should respect and express these roles:
1) Research Application
2) Economic Driver
3) Academic Reinforcement
4) Technology Transfer
In order for the Innovation Campus to adhere to campus design standards, projects must be developed through a thoughtful and well-defined process with ample time for design consideration and review.

The 10-step outline on these pages provides an overview of the University’s process. It lists needed actions by the Owner/Developer and the University, and the amount of time required for each step.

### DEVELOPMENT PROCESS

**In step 1, Initial Proposal**

- **Developer Actions**: Submit project proposal to IC Administration & GB Chair
- **USU Actions**: IC Administration & GB Chair accept project proposal in initial IC Chair of pending actions
- **Duration**: 30 days

**In step 2, Scope Submittal**

- **Developer Actions**: Complete CCR’s & Design Guidelines
- **USU Actions**: IC administration & GB Chair review CCR’s & Design Guidelines
- **Duration**: 30 days

**In step 3, Program/Concept**

- **Developer Actions**: Finalize program & preliminary design for conformance to guidelines
- **USU Actions**: IC administration & GB Chair review CCR’s & Design Guidelines
- **Duration**: 30 days

**In step 4, Schematic Design (SD)**

- **Developer Actions**: Submit SD package & concept design to AC Chair: statement of project scope, concept/activities description, statement of design engineers, owner’s rep for ongoing coordination, architectural design, engineering design, site plan & site utilities, preliminary landscape plan, building plan, building elevations with materials, outline specifications, color board of materials, project statement
- **USU Actions**: IC administration & AC Chair review Owner submittal for compliance with CCR’s & Design Guidelines
- **Duration**: 30 days

**In step 5, Design Approval**

- **Developer Actions**: Submit SD package to Facilities for review (same drawing as SD package, plus drainage, irrigation and landscape designs)
- **USU Actions**: Facilities monitors the SD package for compliance
- **Duration**: One week

**In step 6, Design Development (DD)**

- **Developer Actions**: Submit DD package to Facilities for review (same drawing as DD package, plus drawings of site, building, and landscape designs)
- **USU Actions**: Facilities reviews the DD package for compliance
- **Duration**: One week

**In step 7, Construction Documents**

- **Developer Actions**: Submit 65% CD package to Facilities for review (complete set of progress drawings, samples of exterior building materials)
- **USU Actions**: Facilities reviews the DD package for compliance
- **Duration**: One week

**In step 8, Pre-Construction**

- **Developer Actions**: Submit schedule and access plans
- **USU Actions**: Facilities reviews drawings and specs for compliance
- **Duration**: One week

**In step 9, Construction**

- **Developer Actions**: Submit drawings and specifications to Facilities for compliance review
- **USU Actions**: Facilities monitors project for compliance
- **Duration**: One week

**In step 10, As-Built Submittal**

- **Developer Actions**: Submit to appropriate parties as applicable
- **USU Actions**: Submit to appropriate parties as applicable
- **Duration**: One week

### ACRONYMS & ABBREVIATIONS

- IC: Innovation Campus
- GB: Governing Board of the Innovation Campus
- AC: Advisory Council of the Innovation Campus
- CCR’s: Covenants, Conditions & Restrictions
- Facilities: USU Facilities Planning, Design & Construction
- SD: Schematic Design phase
- DD: Design Development phase
- CD: Construction Documents
- O&M: Operations & Maintenance

**USU INNOVATION CAMPUS | DISTRICT PLAN**

**mhtn architects | PAGE 5.4**

**fffs architects | PAGE 5.5**

**OS DESIGN STANDARDS**

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ARCHITECTURAL DESIGN STANDARDS

The Architectural Design Standards provide a guideline to the character desired for the campus. These are supplemented by more specific requirements developed by the University, found in the appendix.

GENERAL ARCHITECTURAL STYLE

- Conform to guidelines and be sensitive to adjacent existing buildings and approvals
- Express the building use
- Express technology and research aspect of the Innovation Campus

EXTERIOR WALLS

- Integrate design expression on all building sides (no finished fronts with unfinished sides or backs of buildings)
- Building appearance objectives: quality, consistency, sophisticated simplicity
- Transparency at ground level (as appropriate) to encourage connection of exterior and interior, especially at pedestrian zones

MASSING & HEIGHT

- Maximum 4 stories (plus one story for mechanical as needed)
- Preference: Between 2 and 4 stories, with 2-story maximum at campus perimeter and 4-story buildings toward the campus center
- Excessive height requirements reviewed with campus Administration
- Massing consistent with campus character and intent
- Massing reflects building intent and use
- Balanced in scale and proportion

- Building elements have appropriate scale with overall building height and massing
- Articulate the mass
- Large facades: Incorporate vertical and horizontal articulation to break-up scale
- Respect the pedestrian scale
- Provide a comfortable and pleasant pedestrian environment
MATERIALS & FINISHES

The Innovation Campus is open to exterior materials suggestions, but reserves the right to disapprove proposed materials and suggest alternatives based on appropriateness and integration with campus design intent.

- Material selection/construction objective: Lasting durability
- Desired outcome: Visual balance, harmony, consistency, impression of overall quality
- Integration and blending of multiple materials
- Visual emphasis on key elements (primary entry, unique interior elements, features or systems that may be expressed on the exterior)

Generally acceptable exterior materials:
- brick
- architectural block
- architectural concrete
- pre-cast concrete
- synthetic stucco (EIFS)
- pre-finished metal curtain wall systems

Generally non-acceptable exterior materials:
- wood, aluminum or pre-fabricated metal siding
- unfinished or untextured concrete masonry units (CMU), or tilt-up concrete
- selective types of reflective glass
- selective types of stone (i.e. natural or cultured stone which has a rustic or river look)

Use materials to create patterns, texture, articulation, visual interest
- Simple and sophisticated; no loud/busy patterns and textures
- Balanced overall exterior color palette
- Desired outcome: chromatic harmony with rest of exterior and campus
- Monochromatic schemes discouraged

ROOFS

- Finished, durable and consistent with building design
- Consistent with other campus buildings
- Alternative systems encouraged
- Unacceptable: Highly reflective materials, false mansards, uncoated aluminum, steel, or galvanized metal
- Free from objects which are unsightly from ground level or adjacent buildings; mechanical equipment, etc., concealed from view with parapets or screening
- Materials harmonious with overall building color palette
DOORS & ENTRANCES
- Visually emphasized main entrances that engage and address the primary public access and are intuitive to locate
- Integrated into building design
- Metal, glass, storefront
- Access to public pathways
- Protected from wind, snow, sun, etc.

WINDOWS & GLAZING
- Placement consistent with overall building design
- Adequate views and a pleasing internal environment for occupants
- Transparency, especially at ground level, when appropriate
- Placement and orientation supporting environmental aspects
- Daylighting strategies using windows and skylights
- Exterior shading devices appropriate for the orientation, and aesthetically integrated into the building design.
- No highly reflective glass
- Low-E glazing is required
- Frames: metal, wood, fiberglass
- Interior coverings consistent in type, style, color throughout building

BUILDING ENVELOPE PROJECTIONS
- Entry canopies, stair towers, extended fascia, expressive design elements, etc.
- Do not detract from building character
- Review with campus administration
- Significant mechanical/electrical units screened from public view
- Acceptable screening: Vegetation/landscaping, fencing, screen walls
- Include proposed screening in design submittal reviews
MECHANICAL & SERVICE AREAS
• Loading, service, trash - locate for good vehicular circulation
• Large truck circulation - use appropriate design, coordinate with campus administration
• Loading, service, trash, mechanical units screened from public view
• Acceptable screening: Vegetation/landscaping, fencing, screen walls
• Subject to material/material application design review
• Trash/recycling enclosures with pedestrian access

ENERGY EFFICIENCY & SUSTAINABILITY
• Highly efficient HVAC systems encouraged
• Use of energy efficiency and sustainable strategies encouraged
• In early design, undertake a study of return-on-investment for sustainable strategies, in particular for energy efficiency and low water use
• Consider use of occupancy sensors for lighting
• LEED Silver required for all state funded and maintained buildings

LIGHTING
• Fixtures that enhance the building’s architectural design & aesthetic
• Entry lighting - enhance appropriately (no neon, flood lighting)
• Exterior circulation areas near the buildings adequately lit for safety and security
• Comply with Logan/North Logan ordinances, including Dark Sky requirements
• Use of LED lighting encouraged
• Indoor and outdoor lighting must be designed to be considerate of the residential areas north and east of the campus

CODES & STANDARDS
• Comply with all appropriate codes
• Comply with USU signage guidelines
• Encourage compliance with State High Performance Building Standards
• Comply with noise level limits established by USU
• Comply with exterior light level limits established by USU
• Consider installation of blue security phones on the campus
SITE & LANDSCAPE DESIGN STANDARDS

WALKWAYS, BIKEWAYS & TRAILS

The intent of the University is to provide multimodal transportation in and out of the Innovation Campus and reduce the need for private vehicle traffic to and on the Campus. Bicycle and pedestrian circulation is a major emphasis for the future of the campus. The entire campus should be walkable and should include several bike-designated paths which can improve pedestrian and bicycle access to the Innovation Campus from the main campus.

A series of dedicated bike paths are planned on the campus to allow for bike traffic to easily connect to all facilities on the Innovation Campus and with the USU main campus, North Logan and Logan City. The bike paths will allow easier and less time-consuming travel between the Innovation Campus and main campus.

Pedestrian paths provide points from which the campus is viewed; they should provide a sequence of pleasant experiences, vistas & views. Paths play a role in establishing a sense of order and orientation. Pathways are locations for social interaction; points of intersection become natural focal points and gathering spaces – include small seating areas and group-activity spaces adjacent to them. All the existing roadways through the campus are flanked on each side by pedestrian paths. The intent of this plan is to continue the use of pedestrian paths along all major roadways and along defined alleys to provide convenient access to all the facilities on campus. The Innovation Campus will be linked to the USU main campus by a public sidewalk on both 800 East and 1400 North. All primary and secondary walkways are planned to be concrete.

Another important path on the Innovation Campus is the multipurpose recreation trail which serves the University, the Innovation Campus and the community. The USU Athletic Department has a 10-year agreement with the Innovation Campus in the form of a Memorandum of Understanding. It allows the department to construct and maintain a 30-foot-wide trail as an NCAA-sanctioned cross country running trail. In past years, regional NCAA and state high school events have been successfully held on the Innovation Campus.

The recreational trail consists of three types of surfaces: turf, slag and/or road base, which are acceptable NCAA track materials. Asphalt drives and parking areas cannot be used as part of the recreational trail. Unless the track crosses a driveway, asphalt paving cannot be used as a track material. A large turf recreation area in the East District serves as the starting and finishing zone for all meets.

If at all feasible, the trail should be maintained as it weaves around each new area of development on the Innovation Campus. In conjunction with the buffer yard planting and the bioswale, the trail provides a significant buffer between campus developments and the neighboring north residential areas.

The upper and lower canal rights-of-way which run north to south through the site are planned as trails, which will allow connections with both Logan City and North Logan City’s planned future trail systems. Cache County is working closely with city administrators and planning departments on the guidelines for the trail development.

SITE & LANDSCAPE DESIGN STANDARDS
PONDS, PLAZAS & OUTDOOR GATHERING AREAS
Plazas and outdoor gathering spaces are planned in core locations on campus. Two locations are the east end of the 1050 east loop and at the main pond on the east side of the campus. Another location is adjacent to the proposed hotel location on 800 East. These areas are meant to provide locations for vibrant interaction of groups meeting on the campus and for outdoor meeting spaces. These spaces should include a combination of lighting, banners, street furniture, and upgraded plantings and paved areas which will attract users. These spaces should be inviting, planted with colorful shrubs and perennials, and be accessible by students and employers for campus functions. These spaces should also provide users a place to relax and or eat lunch, as well as areas for collaboration and interaction, a main focus of the Innovation Campus. Multiple seating options should be provided to accommodate individuals up to medium sized groups.

OPEN SPACE & LANDSCAPE
The planting design of the new campus quadrants should match the existing design standards and the following guidelines, as nodes, bioswales and other site elements are included in the existing development area to create a consistent design motif across the entire campus.

Gateway Zones
The landscape design in arrival or gateway zones and or nodes should include a more formal lush low water use planting design, with small inviting entry turf areas which lead vehicular and pedestrian traffic into the Innovation Campus. Smaller flowering trees in these zones should create interest and provide a visible contrast to the other street and landscape plantings around the campus. The use of columnar and or smaller flowering trees, including flowering shrubs and perennials in these spaces will provide an attractive three season color palette. The height of planting should remain low to protect pedestrian vision and should welcome and draw visitors, students and employees into the campus. The remainder of the planting adjacent to the arrival zones should include masses of low-water-use plant material.

Signage in these zones should clearly delineate directions to various quadrants of the campus.

Existing picnic table provides a pleasant break/lunch location.

Provide areas for relaxation and collaboration.

Informal gathering spaces are campus amenities.
Ponds and Adjacent Green Space

A central campus landscape theme celebrates the use of water. The inclusion of additional ponds, to be used for storm water detention, will provide a great amenity to the campus and continue the use of water as a major campus design theme. The existing pond and open space provide an area of respite for the campus community. The open space, planting style and amenities of the existing west pond should be continued in the two new proposed ponds in the District Plan.

Storm water retention/detention ponds should be designed for open space recreation when they are not filled with water. Ponds are to be designed to be empty within 72 hours, meaning most of the time they will be open spaces. They should be designed accordingly to accommodate both uses.

Bufferyard

The bufferyard area serves three important purposes on the campus:

- buffer the neighboring north and east residential neighborhoods
- be a placeholder for sections of the 30-foot wide recreation track
- provide a location for the storm water bioswale

The plantings in the bufferyard should include a mix of evergreen trees and shrubs, as well as informal tree and shrub plantings. The use of these materials with a proposed six-foot-high masonry wall will lessen the perceived impact of the site to the residential housing on the north and east sides of the Innovation Campus. This plant material will screen the residential zone from future campus development. This planting area should include native and/or adaptive low water use trees, shrubs and grasses which will require minimal maintenance. (See the Bufferyard Zone Section Cut A.)

Plantings in the bioswale should be commonly-found Zone 3 shrubs, perennials and groundcovers that typically can survive in moist soils and withstand periods of flooding in the swale. A small land drain under the bioswale can ensure the survivability of the plant material.

The bioswale should be constructed to allow for maximum water penetration into the existing subsoil.
Grand Avenue Extension/Bioswale

The campus celebration and use of water continues in the design of Grand Avenue. Grand Avenue channels water from the east end to the west in runnel-like channels, with a runnel continuing west to the main water feature on campus. The Grand Avenue extension which connects to 1050 east acts as a major access from the University to the South. The bioswale should be wider and more aesthetic than the buffer yard bioswale and should celebrate how plant materials and soils can clean storm water from roadways and parking areas and allow some water to infiltrate back into the ground water table.

The aesthetic should include a gravel and boulder stream bed with opportunities for water to cascade down the stream surrounded by sedges, rush, and ornamental grasses in combination with colorful perennials and shrubs. Shrubs should be low growing, no higher than 30” to allow for maximum visibility for vehicular traffic.

Sections of the bioswales in alternate locations should be located adjacent to pedestrian paths, as required for storm water collection. Bioswale design should be aesthetically pleasing with or without water, as they will be without water most of the time above the Cache Highline Water Association Canal.
ADDITIONAL LANDSCAPE DESIGN STANDARDS

Landscape plantings on campus should establish an overall character for the campus and provide unity and scale to the building design. Low water use and low maintenance plantings should define the landscape style of the campus.

Plantings should be used to create and enhance the sense of place, create outdoor rooms, enhance and define pedestrian boulevards and provide four-season interest.

Use drought tolerant, attractive but low maintenance plant material where possible. Native plants and adaptive plants should be given consideration.

Landscape Design and Snow Removal

Landscape design around roads, walks and parking lots should consider snow removal/stockpiling. Trees should not be planted within 10-12 feet of parking lots. Deciduous perennials, ornamental grasses or ground covers are encouraged next to roads and walks. This minimizes winter plant damage and replacement.

Large Shade Trees

- Use to provide shade in parking areas and reduce the heat island effect.
- Large shade trees should be used in formal patterns on all street boulevards.
- Large shade trees in conjunction with under story accent and evergreen trees may be used in the north and east bufferyard zone to screen the residential area from the campus and vice versa.
- Use large shade trees and understory trees in a non-formal pattern in the pond areas and gathering spaces and to create seasonal interest and provide shade to informal seating areas.

Understory Trees

- Use understory flowering trees for way-finding in all gateway areas.
- Use understory trees to define gateway entries, nodes, places and outdoor gathering areas and to provide seasonal interest.
- Use to frame views on and off site.
- Use to define and create outdoor spaces.

Recommended Tree Placement
Shrubs

• Use a combination of native and low maintenance adaptive ornamental zone appropriate shrubs as foundation plantings at primary and secondary building entries.
• Use adaptive ornamentals to provide screening of the adjacent residential zone on the north side of campus.
• Use low maintenance native shrubs in informal groupings building plantings, at main and secondary entries, in parking lot plant planting, in the bioswale areas and in the intermodal zone.

Ground Plane

• Ground cover areas should be minimized and used only for accent plantings.
• The use of stabilized aggregate paths can be used as an alternate paving material in the plaza and outdoor gathering areas. Stabilized aggregate may also be used in some areas of the informal/formal seating areas to create interest in the ground plane.
• Stone mulch is recommended in all planting areas. This type of mulch is cost effective in that it does not need to be replenished and will retain moisture in the soil for plant use. Various sizes of stone should be used to create interest when used in conjunction with informal native or perennial plantings.

Perennials/Ornamental Grasses

• Use native and adaptive perennials/grasses in large masses to create interest and frame the turf areas.
• Masses of perennials and grasses should also be used as accent plantings at pedestrian, vehicular and building entries.
• Smaller masses should be used in building plantings and parking lot plantings.

Turf and Grasses

• High use areas may include bluegrass varieties or a combination of bluegrass and fescue. All other turf areas should include the use of fescue or other low water use turf varieties which require less water and mowing.
• Small turf areas should be avoided.

Irrigation

All irrigation design standards are to meet the existing Utah State University campus design standards and the DFCM design guidelines.
Site Furnishings

Furnishings should support the program requirements of specific campus spaces. A standard palette of furnishings should be developed which will help establish a sense of place and unify the campus aesthetic.

Site Context: Furnishings should be harmonious with the outdoor spaces and structures on campus. Site furnishings can strengthen the sense of place and should be responsive to scale, form and texture of the campus structures.

Functionality: Site furnishings should be practical, low maintenance and yet aesthetically pleasing.

Quality: The site furnishings must be of such quality that they cannot easily be damaged. A long term, high-quality campus environment is of key importance. Powder coated metal is recommended over wood.

Economy: It is imperative that site furnishings be designed and constructed to provide and maintain a cost-effective life cycle.

Sustainability: The use of eco-friendly materials and technologies will reduce the consumption of energy and non-renewable resources. Benches and/or trash and recycling receptacles should be located at gathering places, at nodes on the pedestrian corridors, in strategic locations along the pedestrian boulevards and in the shade of trees. Bike racks should be provided in strategic locations across campus and at building entries, with adequate storage for all users. Covered bike racks are strongly encouraged.

Interior, secure bicycle storage rooms should be considered during building programming and design.
SUSTAINABLE DESIGN STANDARDS

As addressed in Utah State University’s Sustainability Plan, “The University is committed to enhancing the quality of life for individuals and communities by promoting sustainability in its operations and academic missions.” Also, as explained in the University’s policy, “USU will develop appropriate systems for managing environmental, social, and economic sustainability programs with specific goals and objectives.” By means of Innovation Campus sustainability guidelines and standards, USU will create specific goals and objectives that focus on increasing and enhancing the quality of life for individuals on the campus and in the community.

The Innovation Campus is home to facilities owned by Utah State University as well as facilities owned and built by private enterprises that can become property of USU in the future as leases expire. As noted in the mission and vision of the Innovation Campus, one of the purposes of the campus is to encourage development of technologically valuable innovations and help them become viable technology enterprises. One of these guidelines and standards promote sustainability within these economic considerations.

While a person might argue that in the long run sustainably designed and constructed facilities show long term and life cycle economic paybacks, the economic viability of many incubator companies is contingent on developmental first costs. These Innovation Campus Sustainability Guidelines and Standards attempt to balance initial costs with long term benefits. Some of these guidelines and standards have no impact on first costs or are mandated by State and local governmental agencies and should be considered requirements for development on the campus. Others of these guidelines and standards promote and incentivize sustainable development in the Innovation Campus.

BUILT FACILITIES, SITE DEVELOPMENT, AND LANDSCAPING

Utah State University Owned and Developed Facilities

Buildings

All facilities on the Innovation Campus owned and developed by Utah State University must follow the requirements outlined by the State of Utah. The requirements include adherence to the State of Utah High Performance Building Standards and achieving at a minimum LEED Silver Certification. In addition, adherence to USU’s Sustainability Plan is required.

Sites

USU developed sites must follow the principles of sustainability outlined in the LEED Silver Standards. Drought tolerant and low water using plantings should be used. Irrigation systems must be water conserving. Site drainage must comply with state and local regulations with appropriate rainwater areas.

Privately Developed Facilities

Buildings

Developers should strive to achieve a high level of sustainability in their projects. As economics may be a concern, each privately developed facility must complete a life cycle cost analysis to determine the payback difference between first costs for non-sustainable development vs the life cycle costs of a LEED Silver Building and how soon the difference in costs can be paid back, especially regarding HVAC systems, lighting, and other energy dependent systems.

All sustainable practices that are non-cost items must be implemented. These include the following:

- Adherence to IEC energy codes, including use of building envelope requirements for insulation, moisture protection, and air barriers.
- Use of LED lighting
- Building orientation on site and solar control
- Daylighting
- Waste reduction and recycling during construction as well as during building operation
- Use of VOC free materials
- Accommodation of pedestrian friendly pathways, bicycle parking, alternative fuel vehicle parking, and mass transit systems
- Water reducing fixtures
- Participation in constructing portions of roadways and utilities necessary to serve the facility, including extensions necessary

Sites

Developers must strive to create landscapes and sites that support the overall sustainability principles for the Innovation Campus. These include:

- Use of native and drought tolerant landscape planting
- Use of water reducing irrigation systems
- Incorporation of complete street principles into the site landscape
- Construction of a shared portion of campus amenities including open space