CSU Medical Campus Master Plan

Infrastructure Working Group
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Approach

• Define Infrastructure

• Each entity
  – Understand current capacity and allocation
  – Identify constraints for all to consider
  – Identify cost to expand capacity/allocation, move utility or service
  – Identify opportunities for cost savings from conservation installations (new and remodel)
  – Recommend next steps, assistance required

• Service Districts
Infrastructure

• What is it for the Medical Campus?
  – A public safety item (access points, traffic flow, lighting)
  – Parking Services
  – A utility (natural gas, electric, water, sewer – sanitary and storm, telecom, district cooling)
  – Regulatory requirement (storm water capacity and quality)
MEDICAL CAMPUS INFRASTRUCTURE REQUIREMENTS:

- Traffic Study - $20,000

- Road Infrastructure - Phase I - $1,430,000:
  - Cross Drive - North End
  - Gillette Drive - East Loop South End
  - Bridge Crossings New - Along Redwing Dr
  - Bridge Crossings Repurposed - Along Redwing Dr

- Parking Removal - $84,333

- New Parking - $5,400,000
  - Includes Connector Road, Ditch Crossing, Lighting

- Upgraded Intersections - $900,000
  - Research & Drake, Center & Cross

TOTAL: $7,834,333
IBTT AND EQUINE HOSPITAL LIGHTING REQUIREMENTS:

a. Loop Drive Street Lighting - $405,700

*Included in Parking Project budget
Parking Services

• Move employee parking out of campus interior
  – Net loss of approximately 150 spaces
  – Limited parking proximal for deliveries, maintenance
  – Client parking in needed access areas

• Complete parking across Gillette (July 2015)
  – Discussion needed ASAP to understand Medical Campus needs and Stadium, Biology building construction impact

• Re-arrange parking designations based on business model (2nd year, Community practice decisions)

• Recommendation
  – Discussion and study needed
  – Will work in totality of the Medical Campus Build-out

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Public Safety

• Access Points
  – To campus and within campus
  • Clear and visible signage to direct clients, deliveries
  – Recommend traffic study including 3 – 5 mile radius
• Fencing / Lighting
  – Patient containment
  – Faculty, student, staff and client protection
• CSU PD full time presence
  – Location?
• Employee, client, vendor, service ID program
  – Who manages
• Camera System
• Medical Campus feel - Safety and Security with a controlled yet open feel

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IBTT AND EQUINE HOSPITAL UTILITY REQUIREMENTS:

- Utility Corridors to Avoid

Chill Plant

LEGEND
- GAS
- WATER
- DATA & TELECOM
- ELECTRIC
- IRRIGATION
- SANITARY SEWER
- STORM SEWER
- CHILLED WATER

MEDICAL CAMPUS:
FUTURE GROWTH CONSTRAINTS
Colorado State University
12-15-2014
IBTT AND EQUINE HOSPITAL NATURAL GAS REQUIREMENTS:

a. Install Natural Gas Loop - $410,000

An Xcel Energy natural gas loop has already been started at two points on this campus. An additional 2,711 feet of gas main must be installed to complete this loop and serve the gas load of IBTT and ETH. This loop will also serve other new buildings. Xcel Energy will ultimately deliver the true estimate for this infrastructure.
IBTT AND EQUINE HOSPITAL WATER REQUIREMENTS:

a. Install Domestic Water Loop - $175,000
Install 765 feet of new water line creating a looped system around ETH. This line is needed to supply needed flow and pressure to hydrants and fire systems in ETH and IBTT.

b. Water Utility Allocation – $710,000
Based on forecast of existing and estimates of the new IBTT and ETH building loads, South Campus will exceed its allocation cap. An allocation increase must be purchased.

TOTAL: $885,000
IBTT AND EQUINE HOSPITAL DATA & TELECOM REQUIREMENTS:

a. Install Data & Telecom - $105,000
IBTT AND EQUINE HOSPITAL ELECTRIC REQUIREMENTS:

a. Install High Voltage Loop - $800,000
A high voltage loop has already been partially completed on the south side of the medical Campus. This loop must be completed to serve the new buildings.

b. Electrical Utility Allocation – Not Affected
Based on forecast of existing and estimates of the new building loads, South Campus will remain under the 10 Megawatt City allocation cap.
IBTT AND EQUINE HOSPITAL IRRIGATION REQUIREMENTS:

a. Install Irrigation Line - $80,400
   Mainline, Controller & Equipment

Legend

- IRRIGATION
IBTT AND EQUINE HOSPITAL SANITARY SEWER REQUIREMENTS:

a. **Install New Sanitary Sewer Main - $550,000**

Install 1,260 feet of new 8” sanitary main with new connection to the City main in Redwing Road. This new main will serve the ETH and also existing and future buildings on the north edge of the Medical Campus.

b. **Increase Size of City Sanitary Sewer Main - $510,000**

A length of 850 feet of City sanitary sewer main in Redwing Road will need to be increased in size from 8” to 12” to serve the new ETH and IBTT sewer loads. This section of larger main will also be able to serve the other future loads on the Medical Campus.

c. **Sanitary Sewer Utility Allocation – $1,190,000**

Based on forecast of existing and estimates of the new IBTT and ETH building loads, South Campus will exceed its allocation cap. An allocation increase must be purchased.

**TOTAL: $2,250,000**
IBTT and Equine Hospital Stormwater Requirements:

a. Stormwater Master Plan Study - $50,000

The Medical Area of South Campus requires an updated stormwater master plan. This is a drainage and infrastructure plan needed to enable further development. This study will define the character of the storm infrastructure along the eastern edge. Cited cost is an estimate of consulting fees.

b. Install New Stormwater Main - $500,000

Install 1,000 feet of 36” storm sewer main running along the north edge of the Medical Campus. This main will collect runoff from the Medical Campus detention ponds and deliver it to City infrastructure.

c. Create Stormwater Detention Ponds - $400,000

Permanent, on-site detention and water quality features are required for runoff management. The east edge of the Medical Campus will become a series of water quality and detention ponds.
IBTT AND EQUINE HOSPITAL DISTRICT COOLING REQUIREMENTS:

a. Chilled Water Plant Expansion - $1,300,000
The proposed IBTT and ETH cooling loads will require the installation of a third chiller and additional cooling tower at the central plant. The building and utility services to the plant are already sized for this new equipment. Cost also includes needed controls and piping improvements within the plant.

b. Chilled Water Distribution Piping - $230,000
Extend 16” mains north to ETH branch. This piping will serve future loads to the north in addition to ETH, as well as serve as the foundation for a central piping loop.

TOTAL: $1,530,000
IBTT AND EQUINE HOSPITAL UTILITY REQUIREMENTS:

- Natural Gas - $410,000
- Domestic Water - $885,000
- Data & Telecom - $105,000
- Electric & Lighting - $1,205,791
- Irrigation - $80,400
- Sanitary Sewer - $2,250,000
- Stormwater - $1,530,000
- District Cooling - $1,530,000

TOTAL: $7,996,191
COMMUNITY PRACTICE AND 2ND YEAR DVM
UTILITY REQUIREMENTS:

- Domestic Water - Not Generated
- Data & Telecom - $250,000
- Sanitary Sewer - Not Generated
- Stormwater - Not Generated
- District Cooling - Not Generated

**LEGEND**

- **WATER**
- **DATA & TELECOM**
- **SANITARY SEWER**
- **STORM SEWER**

**MEDICAL CAMPUS:**
FUTURE GROWTH CONSTRAINTS

Colorado State University
Service Districts

• Identify services that are common within the area and consolidate to one location and distribute from that location
  – Work flow logistics primary concern
  – Pros: decrease in OTR and delivery traffic within the campus, consolidation of similar items and potential $$ savings
  – Cons – change in operations, question of convenience, who manages and coordinates

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Service Districts

• Examples
  – Hay storage
  – VTH Central Supply/Freight
    • Gain efficiencies by coming directly to Medical Campus
    • Gain space in proposed buildings
  – Maintenance
  – Custodial services and supply
Conclusions and Recommendations

- This is a fluid, dynamic process, Excellent start
- Keep communication lines open and inclusive of infrastructure needs
  - Ensure Facilities Management is kept on the team and at meetings to keep University needs present
- Costs discussed in this presentation are estimates and each will need to be evaluated further

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Conclusions and Recommendations
(continued)

• Several studies recommended using latest models to define needs and costs
  – Traffic
  – Storm Water
  – Security, Risk Assessment and Public Safety
Discussion

(Today’s presentation)

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Next Steps

(Medical Campus Development)